EFFECTIVENESS OF POMEGRANATE SKIN DECOCTION ON REDUCING THE LEVEL OF DIARRHOEA AMONG CHILDREN IN SELECTED PRIMARY HEALTH CENTRE AT THIRUNELVELI DISTRICT

DISSERTATION SUBMITTED TO

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

SEPTEMBER 2015

EFFECTIVENESS OF POMEGRANATE SKIN DECOCTION ON REDUCING THE LEVEL OF DIARRHOEA AMONG CHILDREN IN SELECTED PRIMARY HEALTH CENTRE AT THIRUNELVELI DISTRICT

BY

Mrs. R.KAVITHA

DISSERTATION SUBMITTED TO

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILLMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

SEPTEMBER 2015

SRI. K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Affiliated to The Tamil Nadu Dr. M. G. R. Medical University,

K.R.Naidu Nagar, Sankarankovil, Tirunelveli District,

Tamil Nadu.

CERTIFICATE

This is a bonafide work of **Mrs. R. Kavitha, M.Sc(N),(2013 – 2015 Batch)** second year student of Sri. K. Ramachandran Naidu College of Nursing, Sankarankovil. Submitted in partial fulfillment for the **'Degree of Master of Science in Nursing'** under The Tamil Nadu Dr.M.G.R. Medical University, Chennai.

SIGNATURE _____

Prof. (Mrs). N. Saraswathi, M.Sc (N)., Ph.D (N).,

Principal, Head of the Department of Paediatric Nursing,

Sri. K. Ramachandran Naidu College of Nursing,

Sankarankovil, Tirunelveli-627 753

Tamilnadu.

COLLEGE SEAL

EFFECTIVENESS OF POMEGRANATE SKIN DECOCTION ON REDUCING THE LEVEL OF DIARRHOEA AMONG CHILDREN IN SELECTED PRIMARY HEALTH CENTRE AT THIRUNELVELI DISTRICT

APPROVED BY DISSERTATION COMMITTEE ON _____

PROFESSOR IN NURSING RESEARCH

Prof. (Mrs.). N. SARASWATHI, M.Sc (N)., Ph.D,_____
Principal and Professor of Nursing,
Head of the Department in Paediatric nursing,
Sri. K. Ramachandran Naidu College of Nursing,
K.R.Naidu Nagar, Sankarankovil (TK),
Thirunelveli (Dist)-627753, Tamil Nadu.

CLINICAL SPECIALITY GUIDE

Prof.(Mrs). P.SUBBA LAKSHMI. M.Sc (N), _____
Head of the Department in Community health nursing
Sri. K. Ramachandran Naidu College of Nursing
K.R.Naidu Nagar, Sankarankovil (TK),
Thirunelveli (Dist)-627753, Tamil Nadu.

MEDICAL GUIDE

Dr.RAJARATHINAM, MBBS, _____
Block Medical Officer,
Primary Health Centre,
Karivalamvanthanallur, Sankarankovil (TK),
Thirunelveli (Dist)-627753, Tamil Nadu.

DISSERTATION SUBMITTED TO

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY,

CHENNAI

IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

SEPTEMBER 2015

ACKNOWLEDGEMENT

The journey from the basic search for dissertation up to this bound book is solitary. In a project like this, the investigator requires assistance, encouragement and support from many. I am fortunate to have an abundance of all the requisites at every step.

First of all I wish to acknowledge my heartfelt gratitude to the **LORD ALMIGHTY** for shower His grace and my intense belief on Him helped me in each and every step translates my dreams in reality.

At the outset I express my heartful gratitude to **Mr.R.Vivekanandan,** chairman and **Mrs.G.Prem Santha,** Managing Trustee of Sri.K.Ramachandran Naidu College of Nursing for giving me a chance to uplift my professional life.

My earnest and genuine gratitude goes to **Prof. Mrs. N. Saraswathi**, **M.Sc (N), Ph.D, Principal and Head of the Department of Pediatric Nursing**, Sri.K. Ramachandran Naidu college of Nursing, for her valuable guidance, patience, source of inspiration, constant encouragement and enlightening ideas which enabled me to accomplish this task.

I am extremely grateful to **Prof. Mrs.P.Subbalakshmi, M.Sc.(N), Coordinator of M.Sc (N) II year and Head of the Department of Community Health Nursing,** Sri.K.Ramachandran Naidu College of Nursing, for a constant source of inspiration and encouragement, which was a key for the successful completion of this study.

I wish to express my sincere thanks to **Mrs.G.Thangasubbulakshmi, M.Sc. (N), Lecturer** and **Mrs.S.Vijayalakshmi**, **M.Sc. (N), Lecturer**, Department of Community Health Nursing, Sri.K.Ramachandran Naidu College of Nursing, for their guidance and suggestions for the completion of the study.

I extend my grateful thanks to the **Medical officer and staff nurses** in Vasudevanallur and karivalamvanthanallur primary health centre for their cooperation and help during my data collection procedure.

I extend my sincere thanks to all the **Medical and Nursing Experts** who have given their enlighten ideas in giving shape to the study in its early stage.

I express my sincere thanks to **Mr. Senthilkumar,** Professor of Biostatistics, for his expert guidance in statistical analysis.

I extend my warmest thanks to **Mr.K. Raja Amirtha Pandian M.A, M.Phil, M.Ed.** Lecturer in English for his patience and expertise in editing the content in English.

I extend my sincere thanks to all the children who participated in my study for their cooperation during the data collection.

I am indeed thankful to the **Librarians** of Sri. K. Ramachandran Naidu College of Nursing, and The Tamilnadu Dr. M.G. R. Medical University for their co-operation and their support extended in procuring the literature related to the study.

It is my proud privileges to express my profound sense of deep gratitude and thanks to my beloved husband **Mr.K.Raja Venkateshwara Guptha** and **my lovable cute**

sons Master K.R.Victor Kirubhakaran and **Master K.R.Jerush Prabhakaran** for their measureless love, understanding, support, encouragement and special prayers in all my endeavors.

At the very outset, words are inadequate to express the affection, inspiration and devotion shown by my dear father **Mr.K.Raja Gopal**, my lovable mother **Mrs.R.Muthammal**, my dear brother **Mr.R.Arun Rajesh M.E,** and my family members for their immeasurable love, encouragement, and constant support throughout the study. This study would not have been possible without their co-operation and prayer.

A special bouquet of thanks to all my lovable friends who have helped me a lot to complete the study.

I extend my grateful thanks to those who helped me directly and indirectly during my project work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

A study to assess the effectiveness of Pomegranate Skin Decoction on diarrhoea among children in selected primary health centre at Thirunelveli district was conducted by **Mrs.R.Kavitha** in partial fulfillment of the requirement for the degree of master of science in nursing at the Sri.K.Ramachandran Naidu college of nursing, under the Tamil Nadu Dr.M.G.R.Medical University.

The objectives of the study were,

1. To assess the pre and post test level of diarrhoea among children in experimental and control group.
2. To find out the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in experimental and control group.
3. To compare the pre and post test level of diarrhoea among children in experimental group.
4. To associate the post test level of diarrhoea among children in experimental group and control group with their selected demographic variables.

The following hypotheses were set for the study,

All hypotheses were tested at 0.05 level of significance.

H_1: The mean post-test level of diarrhoea among children in experimental group was significantly lower than the mean post-test level of diarrhoea in the control group.

H_2: The mean post-test level of diarrhoea among children was significantly lower than the mean pre-test level of diarrhoea in the experimental group.

H_3: There was a significant association between post-test level of diarrhoea among children in experimental and control group with their selected demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids.

The study was based on Modified Weidenbach's helping art of clinical Nursing model. The study was conducted in Vasudevanallur and Karivalamvanthanallur Primary

Health Centre at Tirunelveli District. The design adopted for this study was quasi experimental pre and post control group design. Non probability purposive sampling technique was adopted for this study.

The data collection tools were developed for generating the necessary data by using Modified Gorelick diarrhoea assessment scale to assess the level of diarrhoea. The content validity of the tool was established by two medical expert and four nursing experts. The reliability of the tool (r=0.8) was established by “test- re test” method. The pomegranate skin decoction was found to be reliable. Pilot study was conducted to find out the feasibility of the study and to plan for data analysis.

Data was collected in Vasudevanallur and Karivalamvanthanallur Primary Health Centre at Tirunelveli District. The investigator used Modified Gorelick diarrhoea assessment scale to assess the level of diarrhoea in experimental and control group. Then the investigator selected the samples those who were mild and moderate level of diarrhoea. Sixty children were selected by non probability purposive sampling technique method. 30 samples assigned for experimental group and 30 samples for control group. The data related demographic variables were collected from the samples. Experimental group children aged 1-3 years received 5ml pomegranate skin decoction and children aged 4-5 years received 8ml pomegranate skin decoction twice daily for 3 days where as the control group did not received the pomegranate skin decoction. Post test level of diarrhoea was assessed by using Modified Gorelick diarrhoea assessment scale to both experimental and control group. The data was analyzed by using descriptive and inferential statistics.

The major findings of the study were,

- The mean and standard deviation of level of diarrhoea during the pretest was 20.76 and 1.731, during the day I was 16.06 and 1.615, during the day II was 10.38 and 1.471, during the day III was 4.53 and 1.409 in the experimental group. The mean difference and calculated 't' value between the pre test and day I was 4.70 and 9.532, between the day I and day II was 5.68 and 7.891, between the day II and day III was 5.85 and 5.310, and between the day I and day III was 16.23 and 2.612 at the 0.05 level of significance.
- The calculated 't' value between the post test level of diarrhoea among the experimental group and control group was 36.36.
- There was no significant association between the post test level of diarrhoea among children with their selected demographic variables in the experimental group and control group.

Recommendation of the study were,

On the basis of the findings of the study, it is recommended that, the following studies can be undertaken to reduce the level of diarrhoea by using pomegranate skin decoction as a good remedy for children.

1. The similar study can be conducted with large samples for better generalisation.

2. The study can be conducted to assess the knowledge and practice of nurses with regard to administration of pomegranate skin decoction on reducing the level of diarrhoea among children.
3. A comparative study can be conducted by using pomegranate skin decoction on reducing the level of diarrhoea among children in urban and rural area.
4. The same study can be repeated by a true experimental design to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children.

Recommendation based on the suggestions of the study subjects,

1. The nurse educates the community regarding the pomegranate skin decoction on reducing the level of diarrhoea among children.
2. Conduct in-service education program and continuing education program for effective management regarding pomegranate skin decoction on reducing the level of diarrhoea among children.
3. Ensure and conduct workshops, conferences, seminars on pomegranate skin decoction on reducing the level of diarrhoea among children.
4. The research findings need to be publishing through conferences, seminars and publishing in nursing journal to the nursing staff.
5. The research findings help to building and strengthening the knowledge about the effects of pomegranate skin decoction on reducing the level of diarrhoea among children.

Conclusion

This study assesses the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children by using Modified Gorelick diarrhoea assessment

scale. The findings revealed that there was a significant different in the post test level of diarrhoea among children within experimental group and between experimental and control group. Preparation of pomegranate skin decoction was easy, cheap and safe. Hence the nurses can administer the pomegranate skin decoction to reduce the level of diarrhoea among children.

CHAPTER I

INTRODUCTION

"All that mankind needs for good health, and

Healing is provided in nature.

The challenge of science is to find it".

Paracelsus, The Father of Pharmacology.

BACK GROUND OF THE STUDY

Good health is the bed rock on which social progress is built. A nation of healthy people can do those things which make life worthwhile and as the level of health inverses, so does the potential for happiness. An important of body structure and function that necessitates a modification of the children's normal life and has persisted over an extended period of time. **(L.C.Guptha, 2009)**

Young children are more vulnerable than any other age group to the ill effects of unsafe water, insufficient quantities of water, poor sanitation and lack of hygiene. Globally 10.5 million children under the age of five die every year, with most of these deaths occurring in developing countries. Lack of safe water, sanitation and adequate hygiene contribute to the leading killers of children, including diarrhoeal diseases, pneumonia, neonatal disorders and under-nutrition. **(IMNCI, 2011)**

Diarrhoea is not a disease but a symptom. The term diarrhoea commonly referred to as an increase in frequency of stool, stool volume or looseness of stool. It is described quantitatively as more than 200 gram of stool per day. The incidence of diarrhoea may be high as 6 – 12 episodes per children per year in most developing countries and the total diarrhoea morbidity for a given child may be high in first 2

years of age, children with diarrhoea for 10-20 % of their first 3 years of age. **(Terry kyle, 2013)**

Diarrhoea is one the leading causes of morbidity and mortality in infants and young children. It is most commonly caused by gastrointestinal infections and kills around 4.6 million people, including 2.5 million children every year. The main cause of death from diarrhoea is dehydration which results from the loss of electrolytes in diarrhoeal stools. The strength of children to combat diseases is weaker than that of the adults and hence they are unable to tolerate strong medicine. **(UNICEF, 2011)**

Acute gastro enteritis, an inflammation of the mucus membranes of the stomach and intestines, is defined as diarrhoeal disease of rapid onset with or without accompanying manifestations such as nausea, vomiting, fever and abdominal pain. Most cases of gastro enteritis are self-limited; however, more severe or prolonged illness can result in dehydration with significant morbidity and mortality. (**Nicki.L.Potts, 2007)**

The clinical manifestations depend on the causative organism; such as rotavirus, norwalt, adenovirus, shigella, salmonella, camphylobacter, E.coli, clostridium difficile, giardia lambia, and entamoeba histolytica; however in general, signs and symptoms include diarrhoea, nausea, vomiting abdominal pain, weight loss, fever, dehydration and electrolyte imbalances. Diagnosis is based on the history, physical examination and laboratory studies focused on evaluating the child's hydration status and identifying the causative agent. **(Viswanathan, 2009)**

Initially management should begin at home since early intervention can reduce complications such as dehydration and poor nutrition. The most important aspect

underlying home treatment is the need to administer increased volumes of appropriate fluids as well as to maintain adequate caloric intake. Children with no dehydration and mild diarrhoea may be treated with 10 ml / kg of ORS to replace fluid lost with each stool. However most children who are not dehydrated dislike ORS they can be offered age- appropriate foods and additional fluids. **(Hugger et al, 2005)**

If the child is mildly dehydrated, 50 ml / kg of ORS should be given over 4-6 hours Losses from diarrhoea stools and emesis are replaced with an additional 10 ml / kg. Once the dehydration is corrected, the child can resume solid foods. Although there is controversy about which foods are best for refeeding, complex carbohydrate, lean meats, fluids and vegetables are well tolerated. (**King et al, 2003)**

The child with moderate dehydration should be given 100 ml / kg of ORS over 4-6 hours, with replacement of losses from diarrhea and vomit's over these 4-6 hours. When the dehydration is corrected, feeding can be resumed. Severe dehydration requires IV therapy using isotonic solutions. The fluid is administered in boluses of 15-30 ml / kg every 20 minutes until hypovolemia is corrected. **(Liao and Rossignol, 2000)**

Diarrhoea can be corrected through inexpensive and simple means. Different home remedies are available for the treatment of diarrhoea such as carrot juice, pomegranate, blackberry, honey, garlic, orange juice, rice flour, ginger, turmeric etc. Herbal medicines are especially beneficial for small children when they suffer from diarrhoea or colic.

Pomegranate skin extracts are known to have antispasmodic effects, delay gastrointestinal transit, suppress gut motility, stimulate water absorption or reduce

electrolyte secretion. All these activities may explain the benefits of using pomegranate skin extracts in the treatment of diarrhoeal disease. **(Palombo, 2006)**

World Health Organization initiated the diarrhoeal diseases control programme in 1980, approximately 4.6 million children died each year due to diarrhoea. In India at least 1.5- 2.4 million children under the age of five years die every year owing to acute diarrhoea. According to recent reports oral rehydration therapy may now be preventing about one million dehydration deaths. **(WHO, 2011)**

NEED FOR THE STUDY

Global estimation of number of deaths due to acute diarrhoeal diseases have shown a study decline from 4.4 million in the year 1990, 2.5 million in the year 2000, 1.9 million in the year of 2007 and 1.7 million in the year 2011.**(World Health Organization, 2012)**

Acute gastro enteritis accounts for as many as 5 million deaths each year worldwide. In the United States, this illness is responsible for170,000 hospitalizations and 300 deaths in children younger than 5 years of age. **(Ramaswamy and Jacobson, 2011)**

National institute of cholera and enteric diseases reported that acute diarrhoeal disease rank amongst all infectious diseases as a killer in children below five years of age worldwide. Globally 1.6 billion episodes occur annually with an average of 2- 3 episodes per children per year. **(NICED, 2008)**

The current estimates in under five children suggest that there are about 1.4 billion episodes of diarrhoea per year with 123 million clinic visits annually and million hospitalizations worldwide, with a loss of 62 million disability adjusted life

years. About 15 % under five mortality is diarrhoeal disease related. In India, acute diarrhoeal disease accounts for about 13% of deaths in under five years age group. During the year 2009, about 11.2 million cases with deaths were reported in India. **(DALYs, 2009)**

Voluntary health association of India reported that acute gastro enteritis is more common and more dangerous in young children, especially between 6 months to 2 years and especially in malnourished children. About 60-70 % of the children with acute gastro enteritis die because of severe dehydration. **(Voluntary health association of India, 2007)**

A study was conducted and found that diarrhoea remains public health problem in the world and diarrhoea due to bacterial infections is one of the main causes of childhood morbidity and mortality especially in developing countries. **(Katouli et al, 2007)**

In Tamil Nadu diarrhoeal disease causes a heavy economic burden on the health services. Diarrhoea was associated with approximately 9.5 % of all hospitalization of under five children. The incidence of diarrhoea in Tamil Nadu is 3.5 % per child per year.

A study measured the effectiveness of pomegranate skin extract for treatment of rotavirus diarrhoea in 40 children ranging in age from 1 year to 5 years. The duration of diarrhoea in the pomegranate skin extract treatment group was 3 days, compared with 5 days in the control group ($p<0.001$) In the treatment group 8 of 20(40%) children were diarrhoea-free 48 hours after admission to the hospital, compared with 1of 20 (5%) in the control group($p<0.001$). The administration of

pomegranate skin extract in controlled doses shortened the duration of rotavirus diarrhoea and decreased the requirement for rehydration solutions. (**Subotina M.D et al, 2008**)

Diarrhoea is more common in under five children. The researcher felt that a study to prevent diarrhoea among children is important to improve their health condition. There are only few studies conducted in this area. So the researcher selected this problem for research study which is intended to find the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among the children.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in selected primary health centre at Thirunelveli district.

OBJECTIVES

1. To assess the pre and post test level of diarrhoea among children in experimental and control group.
2. To find out the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in experimental and control group.
3. To compare the pre and post test level of diarrhoea among children in experimental group.
4. To associate the post test level of diarrhoea among children in experimental group and control group with their selected demographic variables.

HYPOTHESES

All hypotheses will be tested at 0.05 level of significance**.**

H01 Mean post- test level of diarrhoea among children in experimental group will be significantly lower than the mean post- test level of diarrhoea in control group.

H02 Mean post- test level of diarrhoea among children in experimental group will be significantly lower than their mean pre- test level of diarrhoea in experimental group.

H03 There will be a significant association between the post- test level of diarrhoea among children in experimental group and control group with their selected demographic variables.

OPERATIONAL DEFINITION

ASSESS

It is the systematically and continuously collecting, validating and communicating patient's data regarding the diarrhoea before and after administration of pomegranate skin decoction among children by using modified Gorelick diarrhoea assessment scale.

EFFECTIVENESS

Effectiveness means the result, outcome or change. In this study effectiveness means the reducing the severity of diarrhoea after administration of pomegranate skin decoction among children aged 1-5 years in experimental group.

POMEGRANATE SKIN DECOCTION

In this study, it refers to the extraction of pomegranate juice from a boiled pomegranate skin. It refers to 50gms of fresh pomegranate skin was soaked in 800 ml of water for one hour then boiled until it came to 200 ml and stored in a closed

container. 5ml was given twice daily for 1-3 years of age children and 8ml was given twice daily for 4-5 years of age children respectively for three days.

DIARRHOEA

In this study, it refers to loose, greenish yellow colour stool, with pungent or mild foul smell and passing of watery or loose stool 3 to 6 times per day.

CHILDREN

In this study, it refers to both male and female children between 1-5 years of age with mild and moderate diarrhoea.

ASSUMPTIONS

- Severity of diarrhoea is differ from children to children.
- Pomegranate skin decoction is one of the remedy helps to reduce the severity of diarrhoea in children.

DELIMITATIONS

- The study is delimited to the period of 4 weeks.
- The study is delimited to Vasudevanallur PHC.
- The study is delimited to those who are willing to participate.
- The study is delimited to age group of 1 – 5years children.
- The sample size is 60 only.

PROJECTED OUTCOMES

The finding of the study will help the nurses to plan for the administration of pomegranate skin decoction in order to reduce the severity of diarrhoea among the children.

The finding of the study will help the community health nurse to assess the effectiveness of pomegranate skin decoction might help to reducing the severity of diarrhoea among the infants, and school going children.

CONCEPTUAL FRAMEWORK

The conceptual framework is a set of interrelated concepts that are assembled in together in some rational scheme, in virtue of their relevance to a common theme.

Conceptual framework helps to stimulate research and extensive knowledge. **(Polit, 1990).**

The conceptual framework for research study presents the measure on which the purpose of study is based. The framework provides the perspective from which the investigator views the problems.

The study is based on the concept that the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among the children. The investigator adopted the modified Ernestine Widenbach's helping art of clinical nursing theory as a base for developing conceptual framework.

Ernestine Widenbach's proposes helping art of clinical nursing theory in 1964 for nursing, which describes a desired situation and a way to attain it. It directs action towards the explicit goal. This theory has 3 factors

- Central purpose.
- Prescription
- Realities

Central Purpose

In the study the central purpose is to assess the pomegranate skin decoction on reducing the level of diarrhoea among the children.

Prescriptions

It will specify the nature of action that will fulfill the nurse central purpose. In this study the investigator adopted pomegranate skin decoction as intervention for the children to reduce the severity of diarrhoea.

Realities

The five realities are identified by Widenbach are agent, recipient, goal, means, activities and framework.

Agent: The agent is one who has personal attributes, capacities, capabilities, commitment and competence to provide demonstration. In this study the researcher is the agent. It refers to the plan for administering pomegranate skin decoction.

Recipient: The recipient is the children who had received an investigator intervention. In this study children who received pomegranate skin decoction were the recipients.

Goal: The goal is to direct actions and suggests the reason for taking those actions. The study goal is to reduce the severity of diarrhoea after the administration of pomegranate skin decoction among the children.

Means: The means are the activities used by the investigator to achieve the goal. In this study, "pomegranate skin decoction" was administered to reduce the severity of diarrhoea among the children.

Framework: The framework refers to the facilities in which nursing is practised. In this study, framework refers to Vasudevanallur and Karivalamvanthanallur Primary Health Centre.

The conceptualization of nursing according to this theory consists of three steps as follows.

Step I **:** Identifying the need for help.

Step II : Ministering the need for help.

Step III : Validating that the need for help was met.

Step I: Identifying the need for help.

This step involves determining the need for help. The children are identified as based on the inclusive and exclusive criteria. Purposive sampling technique was used to assess the level of diarrhoea in experimental and control group by using modified Gorelick diarrhoea assessment scale.

Step II: Ministering the need for help.

This refers to provision of needed help. In the study after the selection of samples, investigator administered a pomegranate skin decoction to the experimental group children according to the age group 1-3 years received 5 ml and 4-5 years received 8 ml twice a day for the period of 3 days. But the control group did not received the pomegranate skin decoction.

Step III: Validating that the need for help was met.

It accomplished by means of comparing pre and post test level of diarrhoea after administration of pomegranate skin decoction in the experimental group children.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest. (**Polit & Beck, 2006**)

The review of literature in the research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practices or to provide a basis for conducting a study. **(Burns, 1997)**

The review of literature is organized under the following sections.

Section A: Studies related to prevalence and risk factors of diarrhoea among children.

Section B: Studies related to the treatment of diarrhoeal problem among children.

Section C: Studies related to pomegranate skin decoction.

Section D: Studies related to the effect of pomegranate skin decoction on reducing the level of diarrhoea among children.

SECTION A: STUDIES RELATED TO PREVALENCE AND RISK FACTORS OF DIARRHOEA.

Laura M Lamberti (2012) conducted a systematic review to generate estimates of duration and severity outcomes of diarrhoea for individuals 0-59 months, 5-15 years, and ≥ 16 years, and for 3 severity indexes: mild, moderate, and severe. The results showed that among children under-five, 64.8% of diarrhoeal episodes are mild, 34.7% are moderate, and 0.5% are severe. On average, mild episodes last 4.3 days, and severe episodes last 8.4 days and cause dehydration in 84.6% of cases and among older children and adults, 95% of episodes are mild; 4.95% are moderate; and 0.05% are severe. Among individuals ≥ 16 years, severe episodes typically last 2.6 days and cause dehydration in 92.8% of cases.

O Lyoha (2011) conducted a cross sectional study to estimate the prevalence of diarrhoea and to explore the risk factors associated with diarrhoea in under five

children in Benin city, Nigeria. Overall prevalence of diarrhoea was 22.4% (males: 32.7% and female: 15.3%). Bivariate analysis showed significant relationship of diarrhoea with gender, age, area of living, type of family, duration of diarrhoea, literacy of mother, and religion. Therefore, intervention measures are warranted emphasizing on modifiable risk factors such as area of living, type of family to reduce the level of diarrhoea.

Narayan K et al (2010) did a cross sectional study on prevalence and trends in acute gastro enteritis (AGE) in Lagos State Nigeria. The study examined the trends in the prevalence of AGE in Lagos state Nigeria. A sample of 1000 subjects was taken from a population consisting of children between the ages of 9 months to 5 years spread across the 20 Local Government Areas of the state. Fifty questionnaires were distributed in each local government area. Employing statistical tools such as ANOVA, chi-square that Duncan multiple range test, it was found that prevalence of AGE diffuse across age groups with the age range 9 months-5 years having the highest prevalence.

D N Guptha et al (2010) conducted a cohort study of rural children below 4 years of age was subjected to bi-weekly surveillance using locally resident workers to detect diarrhoeal episode. Faecal samples from active diarrhoea cases were collected before administration of antimicrobials and processed in the laboratory for established enteric pathogens. Examination of faecal leucocytes, RBC and occult blood tests were also undertaken. Overall incidence of diarrhoea was 1.7 episodes./child/year and that of mucoid and blood dysentery was 0.8 and 0.2 episodes/child/year respectively. Children aged 6-11 months had a higher incidence of mucoid diarrhoea (1.3 episodes/child/year) and the peak season was in June and July. Multivariate analysis using logistic regression showed that mucoid diarrhoea and blood dysentery were closely similar in both clinical and laboratory findings, including raised faecal

leucocyte count (>10/hpf). However, abdominal pain occurred more frequently in blood dysentery than mucoid diarrhoea.

Maria clotildes (2010) the prospective cohort, community-based study that was performed in two periurban slums of Salvador, Brazil. Eighty-four children younger than 40 months were randomly selected and visited every other day for one year. The chi-square test was used to evaluate the occurrence of diarrhoea and its associated factors. During the surveillance period, 232 diarrhoea episodes were identified, resulting in an incidence rate of 2.8 episodes/child/year. In average (mean value of 84 children), each child suffered 11.1 days of diarrhea per year, yielding an average duration of 3.9 days per episode. The highest incidence rates were found among children under one year old. Early weaning, male sex, malnutrition, is having a mother younger than 25 years or who considered her child malnourished, missed immunizations and previous pneumonia were associated factors for suffering diarrhoeal episodes. The rates of incidence and duration of diarrhoea that we found are in accordance to those reported by others. Additionally, our results reinforce the importance of environmental and health-related associated factors to the onset of diarrhoea.

Abdulmalik et al (2009) Diarrhoeal diseases are a great public health problem; they are among the most causes leading to morbidity and mortality of infants and children particularly in developing countries and even in developed countries. Rotavirus is the most common cause of severe gastroenteritis in infants and young children in both developed and developing countries. The purpose of this study was to determine the incidence rate of Rotavirus infection, its genotypes, and risk factors among children with diarrhea in Taiz, Yemen. 795 fecal samples were

collected from children (less than 5 years old), suffering from diarrhoea and attending the Yemeni-Swedish Hospital (YSH) in Taiz, Yemen, from November 2006 to February 2008. Rotavirus was detected by enzyme linkage immune sorbent assay (ELISA) on stool specimens of children. Genotypes of Rotavirus were characterized by reverse transcriptase-polymerase chain reaction (RT-PCR) and poly acrylamide gel electrophoresis (PAGE). The results showed that 358 (45.2%) were Rotavirus-positive and the most prevalent genotypes were G2P[4] (55%), followed by G1P[8] (15%). In addition, Rotavirus was found through the whole year; however, higher frequency during the summer season (53.4%) and lower frequency during the winter season (37.1%).

Shailesh Sutariya (2009) conducted a longitudinal study among 2408 children under 5 yrs age group including 541 infants. Maximum cases of diarrhoea (81.89%) were in infants. 90.60% episodes of diarrhoea were treated at home with ORS and/or home available fluids. About half of the diarrhoeal episodes 2798 (46.39%) were occurred in monsoon season. Out of 541 infants diarrhoeal diseases affected 443 infants (81.88%) and 1320 (70.70%) from 1967 children of 1-5 year age group. In 0-11 months age group, number of diarrhoeal episodes per child per year was 4.76 which was higher than 2.97, that was observed in 1-5 year age group. Half of the diarrhoeal episodes 2798 (39%) were occurred in monsoon season, 2186 (36.25%) episodes in summer and 1047 (17.36%) in winter. 5464 (90.60%) episodes were treated at home, 527 (8.24%) need to consult doctor and 40 (0.66%) children were hospitalized. More than half children utilized sub centers and ORS depot. 371(21.05%) treated by private practitioner.

Edward A et al (2009) a study was conducted from serum samples of 215 farm-resident children and 396 non-farm-resident children living in a defined rural Wisconsin population. Antibodies to Campylo bacter jejuni and Escherichia coli O157:H7 lipopolysaccharide (O157 LPS) immunoglobulin G were measured, and the incidence of clinic visits for diarrhoeal illness was determined. Risk factors were assessed in a telephone interview. There were 363 children (59%) with *C.* jejuni antibodies (seropositive for ⩾2 immunoglobulin classes) and 86 (14%) with O157 LPS antibodies. Increasing age and farm residence were independently associated with *C.* jejuni seropositivity by multivariate analysis. O157 LPS antibodies were independently associated with increasing age, female sex, manure contact, and sheep contact. The incidence of clinically recognized diarrhoea was similar among children with and without antibodies to *C.* jejuni and O157 LPS, but the clinic visit rate for diarrhoea was 46% lower among farm-resident children. These results are consistent with reduced occurrence of clinical illness from repeated antigenic stimulation in a farm environment.

Guarino A et al (2009) conducted a study regarding hospital based surveillance to estimate the burden of rotovirus gastro enteritis among children younger than 5 years of age. Rotovirus is the leading cause of AGE requiring hospitalization in young children. Rotovirus gastro enteritis places high demands on health care systems, accounting for 56.2% of hospitalization and 32.8% of emergency department visits because of community acquired AGE in children aged <5 years. Most community- acquired rotovirus gastro enteritis occurs in children aged< 2 years, high proportion occurs in infants aged <6 months cases were also observed among very young infants < 2 months of age. Rotovirus vaccination is expected to have a major impact in reducing morbidity and the pressure on hospital services.

Cascon J et al (2006) matched case-control study was conducted in the Maternal and Child Health Clinic (MCH) in Ifakara, Tanzania, during the rainy season in order to elucidate the risk factors for and etiology of diarrhoeal diseases in children under 5 years of age. Cases (103) and controls (206) were matched for sex and age group. Precoded questionnaires with demographic details, clinical history, and physical signs were completed. Stools samples were collected for bacterial, parasitological, and viral studies. A high number of siblings (odds ratio [OR], 0.86; P = 0.027), the number of siblings surviving (OR, 0.82; P = 0.007), the birth order (OR, 0.85; P = 0.018) and the distance from the house to the water source (OR, 0.33; P = 0.011) were associated with the risk of diarrhoea. There were high rates of entero pathogen isolates in stool samples from children without diarrhoea (52.23%) .Shigella species were the only enteropathogen statistically related with diarrhoea (OR, 2.90; P < 0.029). Enterotoxigenic, enteropathogenic, and enteroaggregative strains of Escherichia coli were not related with diarrhea, and neither were Giardia lambliaor Salmonellaspecies.

Chowdhury H R et al (2005) did a longitudinal study of diarrhoea was carried out from May 1999 to April 2001 by household surveillance of 705 children <5 years old in rural Bangladesh. Stool samples were examined for enteric pathogens at the beginning of each diarrheal episode. For persistent episodes, stool examination was repeated on days 15–17 of the illness. For each case of persistent diarrhoea, stool samples from age-matched acute diarrhoeal and healthy controls were examined. Compared with healthy controls, cases of diarrhoea were associated with Shigella species (P =.07) and rotavirus (P < .05). Diffusely adherent Escherichia coli (P < .05) and cryptosporidia (P = .07) were the only enteropathogens associated with persistent diarrhoea in comparison with acute diarrhoea. No more than 15% of children had the

same class of pathogen identified from stool on both days 1–3 and days 15–17, indicating that persistent infection was uncommon. However, a different persistent diarrhoea.

Webb A et al (2005) conducted a study on acute gastro enteritis in children. The most important complication of gastro enteritis is dehydration. The amount of weight loss as percentage of normal body weight provides the best estimate of degree of dehydration. Clinical signs are not present until the child has lost as least 4% of their body weight. The best signs for identifying dehydration include decreased peripheral perfusion, abdominal skin turgor and an abnormal respiratory pattern. Fluid replacement is the main stay of management and most infants and children can be rehydrated safely with ORS. Antiemetics and antidiarrhoeals drugs are not indicated in children with AGE.

SECTION B: STUDIES RELATED TO THE TREATMENT OF DIARRHOEAL PROBLEM AMONG CHILDREN.

Fayaz Ahamed (2010) observed in the study that 48% of parents showed no special preference for food for their children who were suffering from current and 66.6% in the past episodes of diarrhoea. Four percent of parents were seen to with hold foods during current and 6.9% in the past episodes, as they believed that by giving rest to the bowel, the diarrhoea would subside on its own. Curd and salt tea was preferred by (23.6%) of parents in past episodes and (18.0%) parents of children during current episodes. Parents had used ORS (24.4%) in past (15 days) episodes of diarrhoea while as only (8.4%) of parents had used ORS in current episode of diarrhoea (24 hrs). the reason being that the parents had not taken their children yet to any health facility in current episodes whereas they had used this facility in the

previous episodes. This was because culturally, the parents wait one or two days before visiting the health facility, using their own remedies in the mean while. 77% of children with diarrhoea had received antibiotics, although this is not advised under DDCP (Diarrhoeal Disease Control Programme) but local medical practitioners give these, which reflects on their scanty knowledge of DDCP and (4.8%) were referred and had received I/V fluids.

Robert E Black (2010) conducted a systematic review of efficacy and effectiveness studies and used a standardized abstraction and grading format and performed meta-analyses for all outcomes with ≥2 data points. The estimated effect on diarrhoea mortality was determined by applying the standard Child Health Epidemiology Reference Group rules for multiple outcomes and identified 13 studies for abstraction. Zinc supplementation decreased the proportion of diarrhoeal episodes which lasted beyond 7 days, risk of hospitalization, all-cause mortality and diarrhoea mortality. Using diarrhoea hospitalizations as the closest and most conservative possible proxy for diarrhoea mortality, zinc for the treatment of diarrhoea is estimated to decrease diarrhoea mortality by 23%. Zinc is an effective therapy for diarrhoea and will decrease diarrhoea morbidity and mortality when introduced and scaled-up in low-income countries.

Gopal et al (2010) conducted a study to determine the effectiveness of rice water and lime juice among under five children. Sixty children were randomly selected in the study at Punjab. They were randomly assigned to two groups, group A (experimental) and group B (control). The subjects of group A and group B were received rice water and lime juice respectively for 5 days. The differences between the groups were assessed by using t-test. The level of p=0.05 was considered significantly improved in a group A compared with the control B. The study

concluded that rice water was recommended to reduce the level of diarrhoea among under five children.

Zhang et al (2008) conducted a study to observe the effect of tender-coconut water as guide in children with dehydration. Sixty samples with moderate and severe dehydration were enrolled for study. They were randomly divided into experimental group and control group. The control group did not receive tender-coconut. The children were assessed by dehydration scale, activities, general appearance, were determined before and after administration of tender-coconut water. The study concluded that the children who received TC water show the improvement than the control group children. ($p<0.01$).

Westerdahi et al (2008) performed a randomized trail study to investigate the effects of butter milk on acute gastro enteritis among under five children. There were 84 samples selected randomly and assigned to experimental group (n=42) and control group (n=42). The experimental group was received butter milk 3 times per day. The control group did not receive butter milk. Compared to the control group, the children in the experimental group had a significant reduction in acute gastro enteritis ($p=0.01$). The study concluded that 72% of the children experienced improvement in the experimental group.

Ferreira.G (2008) leads an experimental study in Mangalore on effectiveness of lactobacillus therapy on diarrhea among the toddler. Eighty samples were randomly selected, 40 were assigned to experimental group and 40 were control group. The level of diarrhoea was assessed in both groups before the intervention. Lactobacillus therapy was provided for experimental group twice daily for 4 days. On the 4^{th} day diarrhoeal level were assessed for both groups. The results showed that the mean

score level of diarrhea was 7.80 in the experimental group. Where as 17.70 ($p<0.05$) for the control group. The study concluded that lactobacillus therapy was effective in reduction of diarrhoea.

SECTION C: STUDIES RELATED TO POMEGRANATE SKIN DECOCTION.

Aviram Dornfeld L (2011) conducted a study to assess the effectiveness of pomegranate skin decoction On reducing the peptic ulcer. The research has been conducted on 60 patients. They were randomly divided in to experimental group & control group. The experimental group received pomegranate skin decoction for one week on empty stomach. During this period, the control group received no intervention. The study results showed significant difference between the experimental group than the control group ($p<0.01$).

Davidson MH (2010) performed a randomized trail study to investigate the effects of pomegranate skin decoction on breast cancer among the 40 years old females. There were 44 samples selected randomly and assigned to experimental group (n=22) and control group (n=22). The experimental group received pomegranate skin decoction 20ml twice a day for 15 days. The control group did not receive pomegranate skin decoction. Compared to the control group the experimental group had a significant improvement in the health condition. The study concluded that 68% of the females experienced improvement in the experimental group.

Kaplan M Hayek (2010) conducted a study to assess the effectiveness of pomegranate decoction on reducing the gastritis among adolescents. Thirty samples were selected by using cluster sampling method. The adolescents were divided into two groups; the experimental group and the control group. The experimental group received pomegranate decoction twice a day for 10days. The control group not

received the pomegranate decoction. The result showed that significant reduction in experimental group than the control group.

Jurenka JS (2009) conducted a study to determine the effect of pomegranate skin decoction on reducing the athrosclerosis in old people. The sample population of the study included both male and female above 50 years. Totally 90 samples were selected by simple random sampling and randomly placed in to experimental group and control group. The experimental group received pomegranate skin decoction for one month's twice a day. The results of pre and post test were evaluated by "analysis of covariance method". The study results revealed that pomegranate skin decoction reduce the arthrosclerosis among old people.

SECTION D: STUDIES RELATED TO THE EFFECT OF POMEGRANATE SKIN DECOCTION ON DIARRHOEA AMONG CHILDREN.

Chithralekha P L (2012) conducted a study on effect of pomegranate skin decoction on diarrhoea and dehydration among 40 children with diarrhoea, selected by purposive sampling method, was conducted in CBM homeo hospital, Alappuzha. It was found that there was a significant reduction in diarrhoea and dehydration after administration of pomegranate skin decoction ($p<0.05$). Administration of pomegranate skin decoction was independently effective among children in reducing diarrhoea and dehydration ($p<0.05$).

Raji Kaliyaperumal, (2010) did a study on effect of pomegranate skin extraction for patients with diarrhoea. The sample consists of 40 children, between the age group of 1-8 years with acute diarrhoea. The treatment group received pomegranate skin extraction twice a day for 3 days. Level of diarrhoea was assessed before and 1 hour after the intervention by using WHO diarrhoea assessment scale.

Paired 'T' test was used to assess the effect of pomegranate skin extraction both the group. In the experimental group 'T' value is significantly higher than the tabulated value at 5%, 'χ^2' test was used to assess the difference between experimental and control group, this shows significantly higher than the tabulated value at 5%

Albin A Raja (2010) conducted an experimental study to assess the effectiveness of pomegranate skin extraction among toddler to reduce the level of diarrhoea. One sixty samples were randomly assigned to the experimental group (n=80) and control group (n=80). Pomegranate skin extraction given to the experimental group for four days. The outcome was measured by the activity of the child, general appearance, and frequency of diarrhoea, consistency of stool and smell of stool. The results revealed that pomegranate skin extraction was effective in reducing the level of diarrhoea.

Ataserver A et al (2009) attempted a single blind randomized controlled trial to prevent and minimize the complications of diarrhoea among pre school children. There were 80 samples selected. The experimental group received pomegranate peel extraction to prevent seasonal diarrhoea and the control group received the medical care but not pomegranate peel extraction. The primary outcome measured the incidence of diarrhoea. The secondary outcome measured the complication of diarrhoea. Results from this study were contributed to the incidence of diarrhoea and complications in the experimental group significantly lower than the control group.

Subotina M.D et al (2008) measured the effectiveness of pomegranate skin extract for treatment of rotavirus diarrhoea in 40 children ranging in age from 3 months to 7 years. The duration of diarrhoea in the pomegranate skin extract treatment group was 3 days, compared with 5 days in the control group ($p<0.001$) In

the treatment group 8 of 20 (40%) children were diarrhoea-free 48 hours after admission to the hospital, compared with 1of 20 (5%) in the control group ($p<0.001$). The administration of pomegranate skin extract in controlled doses shortened the duration of rotavirus diarrhoea and decreased the requirement for rehydration solutions.

Kaur U (2008) conducted a study on effect of pomegranate peel extraction on diarrhoeal disease among under five children. This was a randomized, experimental prospective study in a tertiary hospital conducted from January 2009 to June 2010. The sample was made up of 44 participants. Intervention given for only experimental group children for 3 days. Pomegranate peel extraction significantly reduced the level of diarrhoea. There were differences in the level of diarrhoea in the experimental group (P=.157) when compared with the control group. He reported that pomegranate peel extraction is very useful in stopping diarrhoea.

Van sleuwen AN et al (2008) conducted a study to evaluate effect of pomegranate peel extract to reduce the level of diarrhoea among under five children. In experimental group 20 children was received 5ml of pomegranate peel extract for three days. The control group children do not received pomegranate peel extract. Finding indicated that the mean pre test level of diarrhoea was significantly lower than the mean post test level of diarrhoea in the experimental group.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and to gather and analyze information in a systematic fashion. (**Polit and Hungler**) Methodology includes the steps, procedures and strategies for gathering and analyzing the research investigation.

This chapter provides a brief description of the method adopted for the study. It includes research approach, research design, setting of the study, population, sample, sample size, sampling technique and criteria for selection of samples, development and description of interventions, pilot study, plan for data analysis and interpretation of subject.

RESEARCH APPROACH

Quantitative research approach was used for this study. In this the researcher lays out in advance the steps to be taken to maximize the integrity of the study and then follows those steps as faithfully as possible.(**Polit and Hungler**)

RESEARCH DESIGN

The research design used in this study was quasi experimental pre and post test control group design.

GROUP	PRE TEST	INTERVENTION	POST TEST
Experimental	O_1	X	O_2,O_3,O_4
Control	O_1	-	O_5,O_6,O_7

Figure: 2 Schematic representation of the research design

KEY

- O_1- Pre test level of diarrhoea among experimental group.
- X- Administration of pomegranate skin decoction.
- O_2, O_3, O_4 -Post test level of diarrhoea among experimental group.

- O_1-Pre test level of diarrhoea among control group.
- O_5, O_6, O_7 -Post test level of diarrhoea among control group.

VARIABLES

Independent variables:

Pomegranate skin decoction.

Dependent variables:

Diarrhoea.

SETTING OF THE STUDY

The setting of the study refers to the area where the study was conducted. The experimental study samples were selected from Vasudevanallur Primary Health Centre at Thirunelveli district. It is situated 18 kilometers away from our college. The Primary Health Centre covering 42,078 populations. In outpatient department daily 250 patients are getting treatment, among them 40 patients were children. The control study samples were selected from Karivalamvanthanallur Primary Health Centre at Thirunelveli district. It is situated 6 kilometers away from our college. The Primary Health Centre covering 38,593 populations. In outpatient department daily 220 patients are getting treatment, among them 35 patients were children. The distance between the two Primary Health Centre is 12 kilometers.

POPULATION

The Population of the study was 1-5 years old children who were having mild and moderate diarrhoea.

SAMPLE

The study samples were both male and female children aged between 1-5 years who fulfilled the inclusive criteria.

SAMPLE SIZE

The sample size comprises of 60 children with mild and moderate diarrhoea. Experimental group consist of 30 children with mild and moderate diarrhoea and control group consists of 30 children with mild and moderate diarrhoea.

SAMPLING TECHNIQUE

The non probability purposive sampling technique was used for this study as per the availability of the children aged 1-5 years with mild and moderate diarrhoea; the researcher used purposive sampling technique to draw the samples based on inclusive criteria and assigned each samples to experimental and control group by using Modified Gorelick diarrhoea assessment scale. The investigator selected 30 children who had the mild or moderate diarrhoea for experimental group in Vasudevanallur Primary Health centre and selected 30 children who had the mild or moderate diarrhoea for control group in Karivalamvanthanallur Primary Health centre and excluded the children who had severe diarrhoea.

CRITERIA FOR SAMPLE SELECTION

The sample was selected on the basis of inclusion criteria.

INCLUSION CRITERIA

- Age group between 1-5 years of children.
- Both male and female children.
- Children who had mild and moderate diarrhoea.
- Parents who were willing to participate in the study.

EXCLUSION CRITERIA

- Children with severe diarrhoea.
- Infants and children above five years.
- Parents who were not willing to participate in the study.
- Mentally retarded children.
- High risk children like severe dehydration, cardiac diseases, respiratory distress syndrome etc.

DEVELOPMENT AND DISCRIPTION OF THE TOOL

Data collection tools are the devices that a researcher uses to collect the data. A search for literature was made for the purpose of locating appropriate tool. Treece and Treece (1986) state that instruments selected should be a vehicle that obtains data for drawing conclusions pertinent to the study and add to the body of knowledge in a discipline.

The tool was developed after extensive review of literature, internet search and expert's advice helped the investigator to select suitable scale for reducing the level of diarrhoea among children aged 1-5 years.

The tool comprised of two sections.

Section A: Demographic Data

This section consist of demographic variables of children including age, sex, religion, type of family, area of living, educational status of mother, employment status of mother, family income, duration of diarrhoea, home remedies given, treatment given, medication given and types of oral fluid.

Section B: Modified Gorelick Diarrhoea Assessment scale

This section consists of 15 questions to assess the level of diarrhoea. Each statement had four responses. Normal-0, Mild-1, Moderate-2, Severe-3. The total score was 45.

SCORING PROCEDURE AND INTERPRETATION

Modified Gorelick Diarrhoea assessment scale was used to assess the level of diarrhoea among children aged between 1-5 years.

Category	Score
Normal bowel pattern	0
Mild diarrhoea	1-15
Moderate diarrhoea	16-30
Severe diarrhoea	31-45

DESCRIPTION OF INTERVENTION

Pomegranate skin extract are known to have antispasmodic effects, delay gastrointestinal transit, gut motility, stimulate water absorption, reduce electrolyte secretion.

Consent was obtained from parents of each children and reassurance was given that the collected data would be kept confidential.

Explained the action of pomegranate skin decoction.

Decoction was prepared from fresh pomegranate skin, which belongs to family of punicaceae. 50grams of fresh pomegranate skin was soaked in 800ml of water for one hour, boiled until it came to 200ml and stored in a closed container at room temperature. Extracted Pomegranate skin decoction was administered within

three hours of time. 5ml was given twice a day for 1-3 years of age children and 8ml was given twice a day for 4-5 years of age children.

Pomegranate skin decoction was given morning and evening at 6 hours intervals for three days.

VALIDITY

The content validity of the tool was established on the basis of opinion of the medical expert and four nursing expects in the field of community health nursing. Tool was modified as per the suggestions of all the experts and the tool was finalized.

RELIABILITY

Reliability of the tool (Modified Gorelick Diarrhoea assessment scale) was tested by "test-retest" method by using Karl Pearson correlation coefficient reliability method. The reliability score obtained was r=0.8. Hence the tool was considered highly reliable for proceeding with this study. .

PILOT STUDY

It was the rehearsal for the main study. The researcher got permission from Principal and the Research ethical committee of Sri. k. Ramachandran Naidu College of nursing and the HOD of community health nursing. A formal permission was obtained from the Block medical officer of Rayagiri primary health centre at Thirunelveli district. The pilot study was conducted in Rayagiri primary health centre for the period of one week (23.02.2015 to 28.02.2015) from 9 am to 6 pm.

Rapport was established with the participants and a brief introduction about the study was given. The investigator assessed the children aged between 1 to 5 years who were attending out patient department with diarrhoea. Then the investigator

assessed the level of diarrhoea by using Modified Gorelick diarrhoea assessment scale. According to the Modified Gorelick diarrhoea assessment scale, the investigator selected the children aged 1-5 years who had the mild and moderate diarrhoea and excluded the children who had severe diarrhoea. Then the investigator selected the sample by purposive sampling technique, 3 samples were in experimental group and 3 samples were in control group.

Consent was obtained from each sample and reassurance was provided that the collected data would be kept confidential. Then the researcher explained about the action of pomegranate skin decoction to the parents of each child. According to the age group of children aged 1 to 3 years received 5 ml of pomegranate skin decoction and children aged 4 to 5 years received 8 ml of pomegranate skin decoction twice daily at 6 hours interval for 3 days respectively for the experimental group. No intervention was given to the control group.

Post-test were assessed after one hour by using Modified Gorelick diarrhoea assessment scale for the experimental group and control group. The experimental group showed that significant reduction in the level of diarrhoea and the children became normal. The control group showed that there was no significant reduction in the level of diarrhoea. The study was found to be feasible and hence the same procedure was decided to be followed in the main study. The samples selected for the pilot study was not included in the main study.

PROCEDURE FOR DATA COLLECTION

The researcher got the permission from principal and research ethical committee of Sri. k. Ramachandran Naidu college of nursing and HOD of community health nursing. An official permission for conducting the study and data

collection in their premises was obtained from the medical officer of the primary health centre, Vasudevanallur. Good rapport was maintained and brief introduction was given about the study and got oral consent from the parents.

Phase- I: Selection of samples

In Vasudevanallur primary health centre daily 250 patients were attending the OPD among them 40 patients were children out of this 5-7 children were having diarrhoea. The investigator selected 3-4 samples per day by using modified Gorelick diarrhoea assessment scale. On the basis of children who attending the OPD the investigator assessed the level of diarrhoea by using modified Gorelick diarrhoea assessment scale. Among them the investigator selected the children with mild and moderate diarrhoea by using non probability purposive sampling technique, 30 samples were selected from Vasudevanallur Primary Health Centre were assigned to experimental group.

In Karivalamvanthanallur primary health centre daily 220 patients were attending the OPD among them 35 patients were children out of this 4-6 children were having diarrhoea. On the basis of children who attending the OPD the investigator assessed the level of diarrhoea by using modified Gorelick diarrhoea assessment scale. Among them the investigator selected the children with mild and moderate diarrhoea by using non probability purposive sampling technique, 30 samples were selected from Karivalamvanthanallur Primary Health Centre were assigned to control group.

Phase- II: Administration of pomegranate skin decoction

Data pertaining to the demographic variables was collected by interview method from parents of selected samples. In experimental group pre test level of

diarrhoea was assessed by Modified Gorelick diarrhoea assessment scale then the investigator administered pomegranate skin decoction 5ml for 1-3 years of age children and 8ml for 4-5 years of age children twice daily at 6 hours interval for three days.

For the control group pre test level of diarrhoea was assessed by using Modified Gorelick diarrhoea assessment scale similar to the experimental group and no intervention was given.

Phase-III: Post test for experimental and control group

In experimental group, on first day evening after one hour administration of pomegranate skin decoction first observation on post test level of diarrhoea was assessed by using Modified Gorelick diarrhoea assessment scale, 2nd and 3rd day post test level of diarrhoea was assessed in the evening by using Modified Gorelick diarrhoea assessment scale after one hour administration of pomegranate skin decoction in home setup for three days. In control group, on first day evening first observation on post test level of diarrhoea was assessed by using Modified Gorelick diarrhoea assessment scale, 2nd and 3rd day post test level of diarrhoea was assessed in the evening by using Modified Gorelick diarrhoea assessment scale in home setup for three days. There was a significant reduction in the level of diarrhoea in the experimental group than the control group.

PLAN FOR DATA ANALYSIS

After the data collection the collected data were organized, tabulated, summarized and analyzed according to the objectives of the study analyzed by using both descriptive and inferential statistics.

Descriptive Statistics

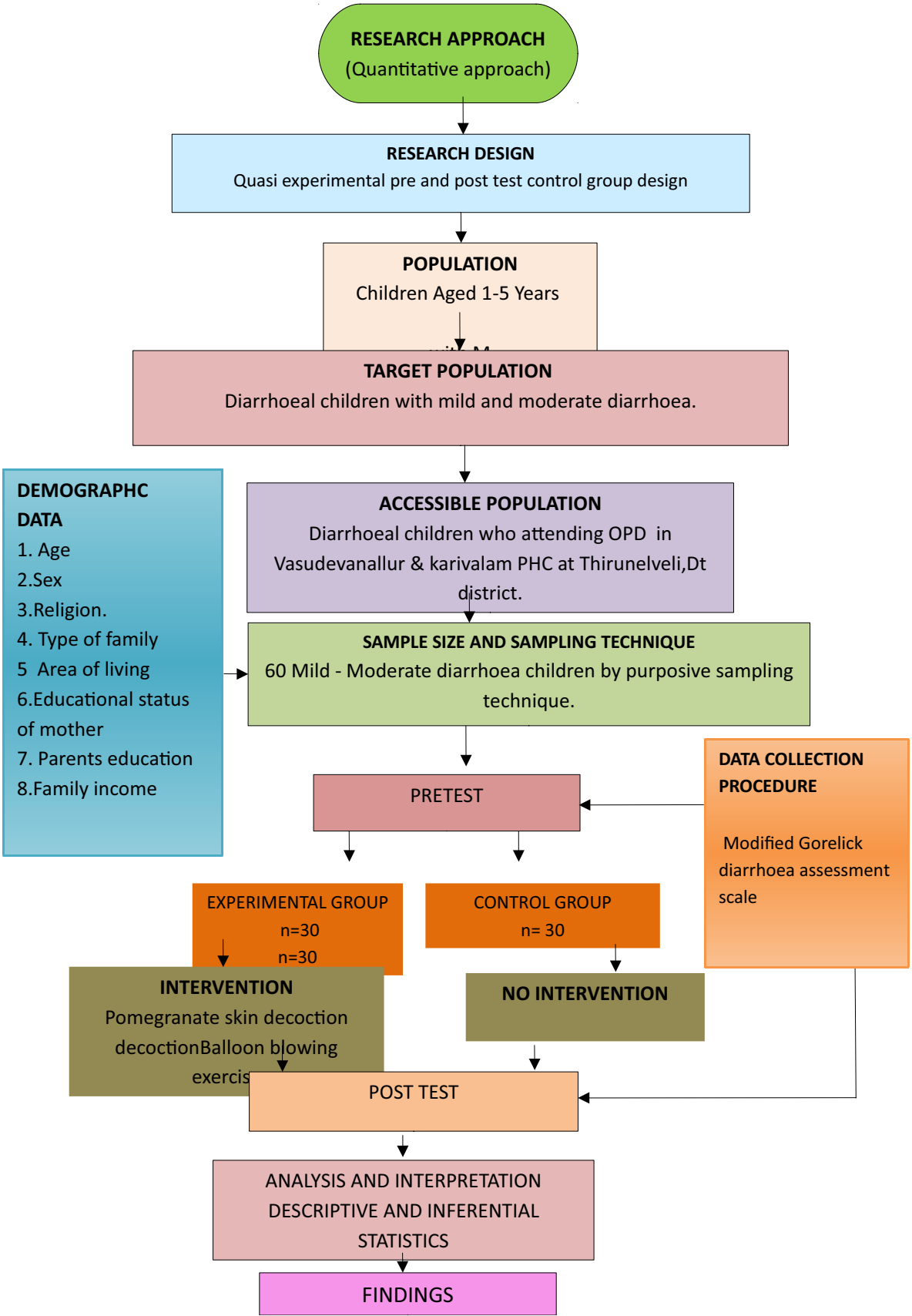
- Frequency and percentage distribution were used to analyze the demographic data.
- Frequency and percentage distribution were used to assess the level of diarrhoea of the children.
- Mean and standard deviation were used to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children.

Inferential Statistics

- Paired "t" test was used to compare the pre and post test level of diarrhoea among experimental group.
- Unpaired "t" test was used to compare the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea between experimental group and control group among children.
- Chi-square test was used to associate the post test level of diarrhoea among children with their selected demographic variables of experimental and control group.

PROTECTION OF HUMAN RIGHT

Ethical clearance was given by the Principal, Research and ethical committee of Sri.k.Ramachandran Naidu college of nursing and got permission from the Block medical officer of the Vasudevanallur primary health centre and Karivalamvanthanallur primary health centre. The consent of each children parent was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collection. The participants were assured that there was no harm caused to them during the course of study by participating in the study.


RESEARCH APPROACH
(Quantitative approach)
RESEARCH DESIGN
Quasi experimental pre and post test control group design
POPULATION
Children Aged 1-5 Years
TARGET POPULATION
Diarrhoeal children with mild and moderate diarrhoea.
DEMOGRAPHC DATA
1. Age
2.Sex
3.Religion.
4. Type of family
5 Area of living
6.Educational status of mother
7. Parents education
8.Family income
ACCESSIBLE POPULATION
Diarrhoeal children who attending OPD in Vasudevanallur & karivalam PHC at Thirunelveli,Dt district.
SAMPLE SIZE AND SAMPLING TECHNIQUE
60 Mild - Moderate diarrhoea children by purposive sampling technique.
DATA COLLECTION PROCEDURE
Modified Gorelick diarrhoea assessment scale
PRETEST
EXPERIMENTAL GROUP
n=30
n=30
CONTROL GROUP
n= 30
INTERVENTION
Pomegranate skin decoction
decoctionBalloon blowing
exercis
NO INTERVENTION
POST TEST
ANALYSIS AND INTERPRETATION
DESCRIPTIVE AND INFERENTIAL STATISTICS
FINDINGS

CHAPTER– IV

Figure: 3 Schematic Representation of Research Methodology

ANALYSIS AND INTERPRETATION

Data analysis is the systematic organization and synthesis of research data, and the testing of research hypothesis is using those data. **(Polit & Hungler, 2003)**

This chapter deals with the analysis and interpretation of collected data from the 60 children aged 1-5 years with mild and moderate diarrhoea in selected Primary health centre at Thirunelveli District.

Analysis is the method of organizing, shorting and scrutinizing data in such a way that research question can be answered**. (Polit 2005)**

Descriptive and inferential statistics were used to analyze data on the basis of the objectives of the study.

ORGANIZATION OF DATA

The data has been tabulated as follows

Section – A: Analysis of demographic data.

- Frequency and percentage distribution of samples based on demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids given in the experimental and control group**.**

Section –B: Analysis of the level of diarrhoea among children of experimental and control group.

- Frequency and percentage distribution of pre and post test level of diarrhoea among children in the experimental group.
- Frequency and percentage distribution of pre and post test level of diarrhoea among children in the control group.

Section –C: Comparison of the level of diarrhoea among children between the experimental and control group.

- Comparison of post test level of diarrhoea among children between the experimental and control group.

- Comparison of mean and standard deviation of pre and post test level of diarrhoea among children in the experimental group.
- Comparison of mean and standard deviation of first day and second day post test level of diarrhoea among children in the experimental group.
- Comparison of mean and standard deviation of first day and third day post test level of diarrhoea among children in the experimental group.
- Comparison of mean and standard deviation of second day and third day post test level of diarrhoea among children in the experimental group.

Section –D: Association of post test level of diarrhoea among the experimental group with their selected demographic variables.

- Association of post test level of diarrhoea among children with their selected demographic variables of experimental group.

PRESENTATION OF DATA

SECTION A –ANALYSIS OF DEMOGRAPHIC DATA OF DIARRHOEAL CHILDREN.

Table:1 Frequency and percentage distribution of samples based on demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids given in the experimental and control group.

(N=60)

S. No	Demographic variable	Experimental Group		Control Group		Total	
		f	%	f	%	f	%
1.	**Age in years**						
	1-3 years	18	60	16	53.33	34	56.67
	4-5 years	12	40	14	46.67	26	43.33
2.	**Sex**						
	Male	17	56.67	14	46.67	21	35
	Female	13	43.33	16	53.33	39	65
3.	**Religion**						
	Hindu	18	60	15	50	33	55
	Christian	2	06.67	11	36.67	13	21.67
	Muslim	10	33.33	4	13.33	14	23.33
4.	**Type of family**						
	Nuclear	22	73.33	20	66.67	42	70
	Joint	8	26.67	10	33.33	18	30
5.	**Area of living**						
	Urban	–	–	–	–	–	–
	Rural	30	100	30	100	60	100
6.	**Education of the mother**						
	Primary	4	13.33	8	26.67	12	20
	Secondary	14	46.67	13	43.33	27	45
	Hr secondary	11	36.67	7	23.33	18	30
	Graduate and above	1	03.33	2	06.67	3	05

7.	**Parents employment**						
	Coolie	6	20	14	46.67	20	33.33
	Self	12	40	5	16.67	17	28.33
	Government	–	–	–	–	–	–
	Private	12	40	11	36.67	23	38.34
8.	**Family income / Month**						
	Below 3000 Rupees	2	06.67	6	20	8	13.33
	Rs3001-5000	8	26.67	9	30	17	28.33
	Rs5001-7000	16	53.33	9	30	25	41.67
	Above 7000	4	13.33	6	20	10	16.67
9.	**Duration of diarrhea**						
	1 Day	2	06.67	5	16.66	7	11.67
	2-3 Days	22	73.33	17	56.67	39	65
	Above 3 days	6	20	8	26.67	14	23.33
10.	**Any home remedies**						
	Yes	–	–	–	–	–	–
	No	30	100	30	100	60	100
11.	**Any drugs for diarrhea**						
	Yes	3	10	4	13.33	7	11.67
	No	27	90	26	86.67	53	88.33
12.	**Type of oral fluids**						
	Rice kanji	25	83.33	24	80	49	81.67
	TC water	–	–	–	–	–	–
	Salt-Sugar Water	5	16.67	5	16.67	10	16.67
	Butter Milk	–	–	1	03.33	1	1.66
	Lime Juice	–	–	–	–	–	–

Table 1 depicts the frequency and percentage distribution of demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids given in the experimental and control group.

While considering the age, majority of children 18 (60%) were between the age group of 1-3 years, and 12 (40%) children were between the age group 4-5 years in the experimental group. Whereas 16 (53.33%) children were between the age group of 1-3 years, and 14(46.67%) children were between the age group of 4-5years in the control group.

With respect to sex, 17 (56.67%) were male children and 13 (43.33%) were female children in the experimental group. Whereas 14 (46.67%) were male children, and 16 (53.33%) were female children in the control group.

With regard to religion, majority of children 18 (60%) were Hindu, 2 (6.67%) were Christian, and 10 (33.33%) were Muslim in the experimental group. Whereas 15 (50%) were Hindu, 11 (36.67%) were Christian, and 4 (13.33%) were Muslim in the control group.

With respect to the type of family, majority of the children 22 (73.33%) were from nuclear family, and 8 (26.67%) were from joint family in the experimental group. Whereas 20 (66.67%) were from nuclear family and, 10 (33.33%) were from joint family in the control group.

With regard to area of living all the children 60 (100%) in experimental and control group were belongs to rural area and none of them from urban area in the experimental and control group

With respect to educational status of mother, 4 (13.33%) were in primary education, 14 (46.67%) were in secondary education, 11 (36.67%) were in higher secondary education and 1 (03.33%) were in graduate in the experimental group. Whereas 8(26.67%) were in primary education, 13 (43.33%) were in secondary education, 7 (33.33%) were in higher secondary education and 2 (06.67%) were in graduate in the control group.

With regard to parents employment status, 6 (20%) were coolie, 12 (40%) were self employed, 12 (20%) were private employed and none of them were government employed in the experimental group. Whereas 14 (46.67%) were coolie, 5 (16.67%) were self employed, 11 (36.66%) were private employed and none of them government employed in the control group.

With respect to family income, 2 (6.67%) were getting below 3000 Rupees, 8 (26.67%) were getting Rupees 3001-5000, 16 (53.33%) were getting Rupees 5001-7000 and 4 (13.335) were getting above 7000 Rupees in the experimental group. Whereas 6 (20%) were getting below 3000 Rupees, 9 (30%) were getting Rupees 3001-5000, 9 (30%) were getting Rupees 5001-7000 and 6 (20%) were getting above 7000 Rupees in the control group.

With regard to duration of diarrhoea, 2 (6.67%) were had 1 day, 22 (73.33%) were had 2-3 days, and 6 (20%) were had above 3 days in the experimental group. Whereas 5 (16.67%) were had 1 day, 17 (56.67%) were had 2-3 days, and 8 (26.67%) were had above 3 days in the control group.

With respect to home remedies, none of the children received home remedies 30 (100%) in experimental group and 30 (100%) in control group.

With regard to drugs given for diarrhoea, majority of children 27 (90%) were not received any drugs in home and 3 (10%) were received anti-diarrhoeal drugs in the experimental group. Whereas 26 (86.67%) were not received any drugs in home and 4 (13.33%) were received anti-diarrhoeal drugs in the control group.

With respect to type of oral fluids given to children, majority of children 25 (83.33%) were received rice kanji, 5 (16.67%) were received salt sugar water and none of them received TC water, lime juice, and butter milk in the experimental group. Whereas 24 (80%) were received rice kanji, 5 (16.67%) were received salt sugar water, 1 (3.33%) were received butter milk and none of them received TC water and lime juice in the control group.

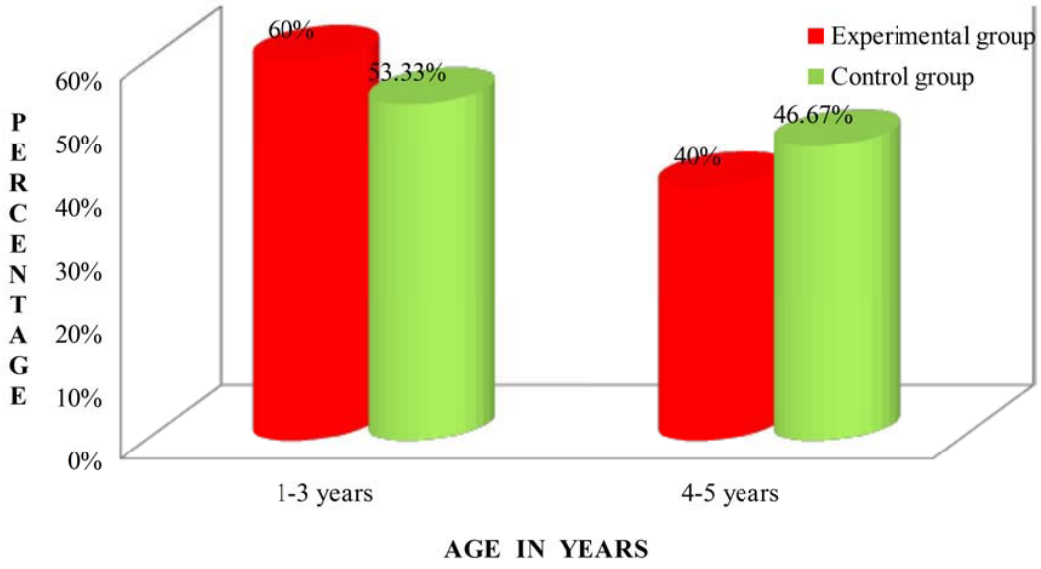


Figure 4: Percentage distributions of samples according to age in years

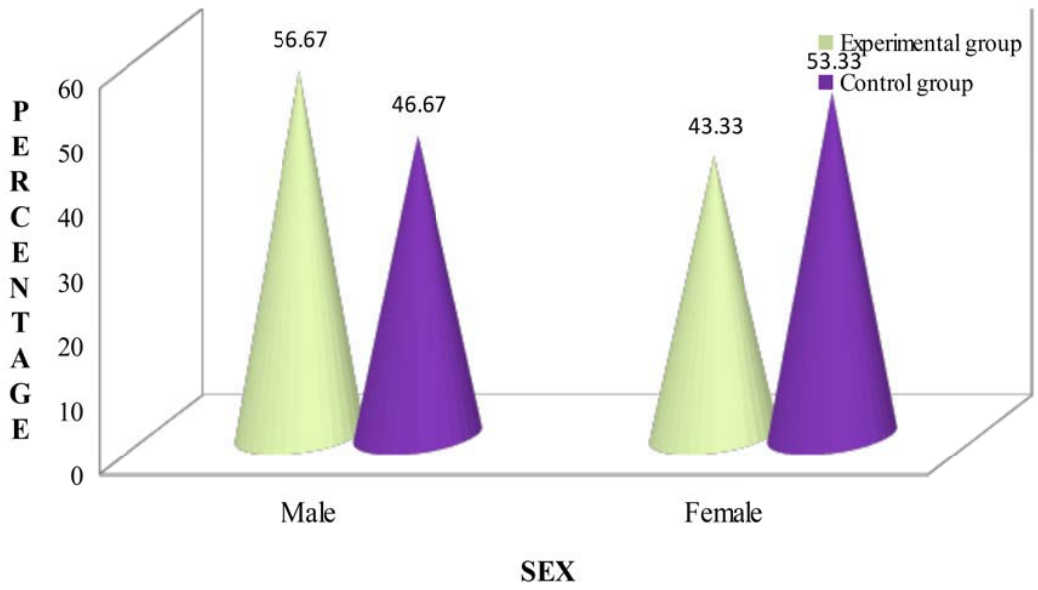


Figure 5: Percentage distributions of samples based on sex

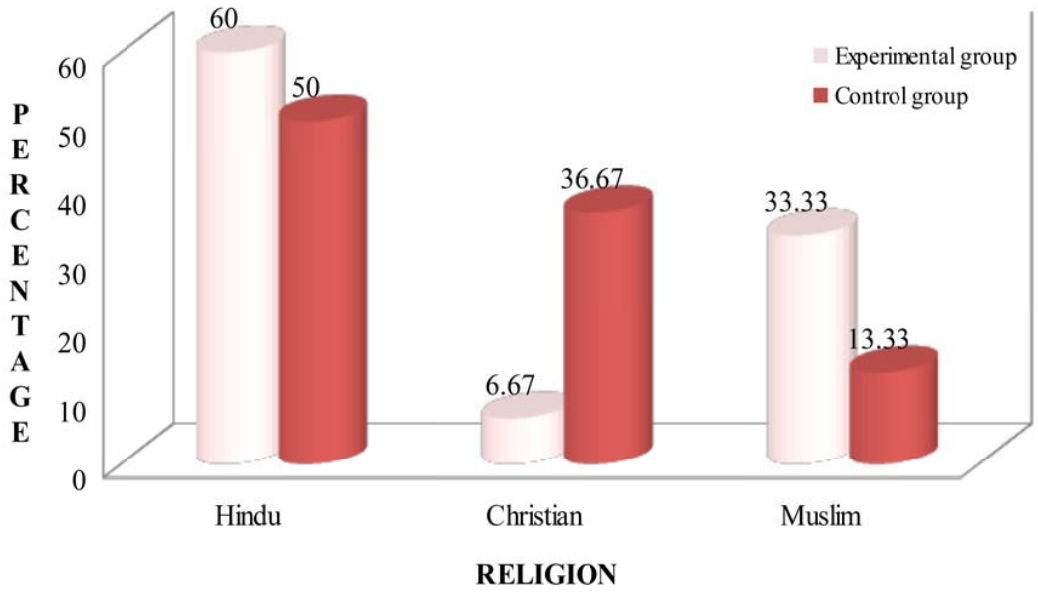


Figure: 6 Percentage distributions of samples based on religion

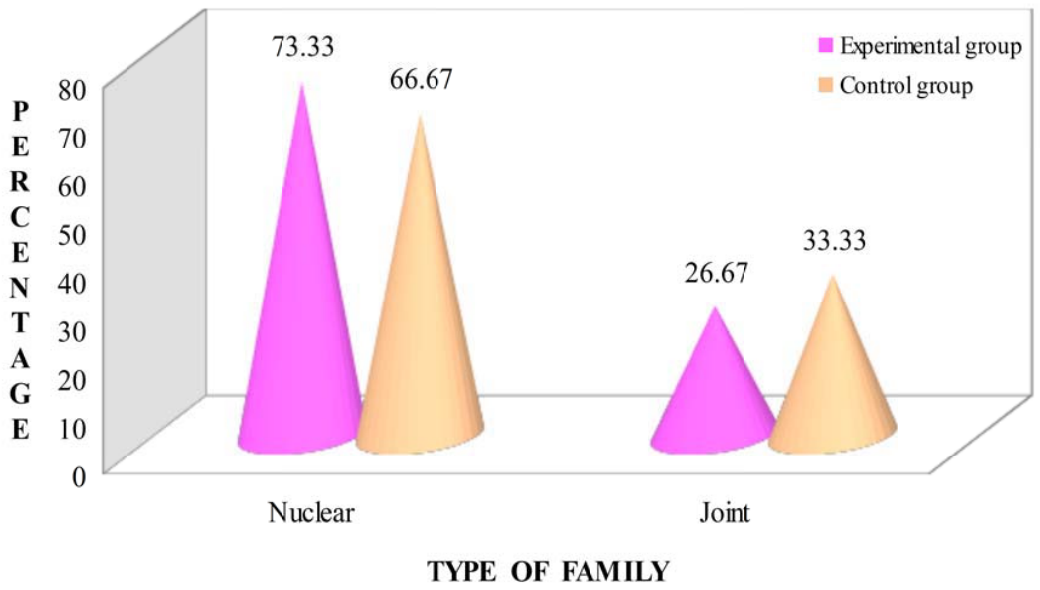


Figure: 7 Percentage distributions of samples based on type of family

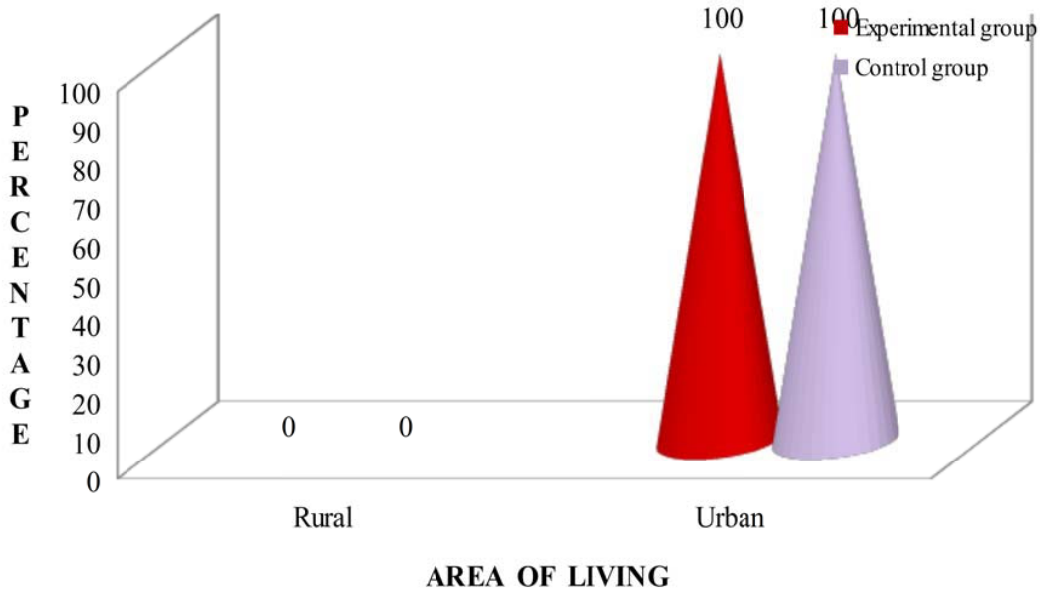


Figure: 8 Percentage distributions of samples based on areas of living

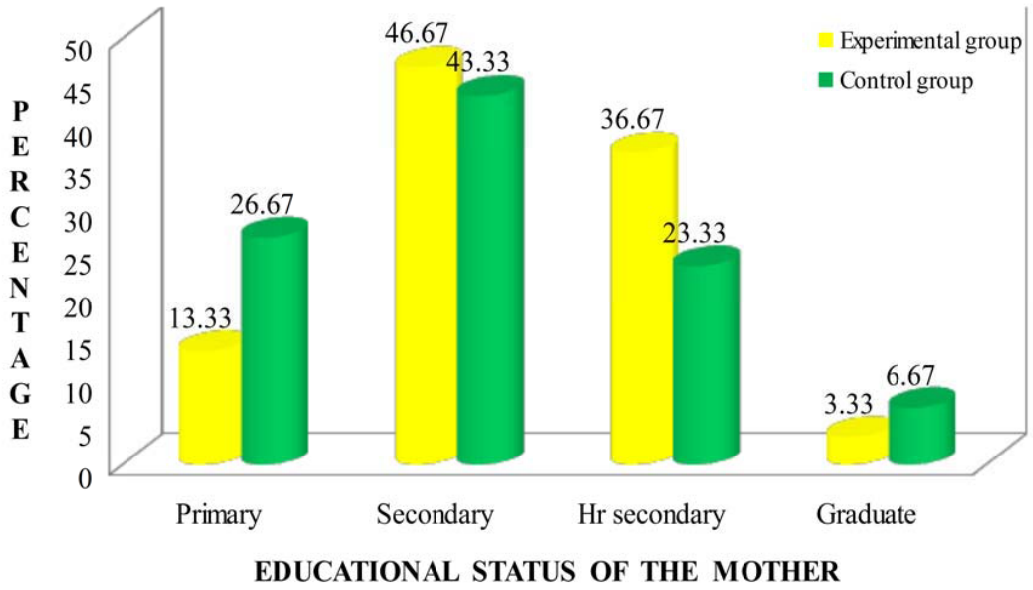


Figure: 9 Percentage distributions of samples based on educational status of mother

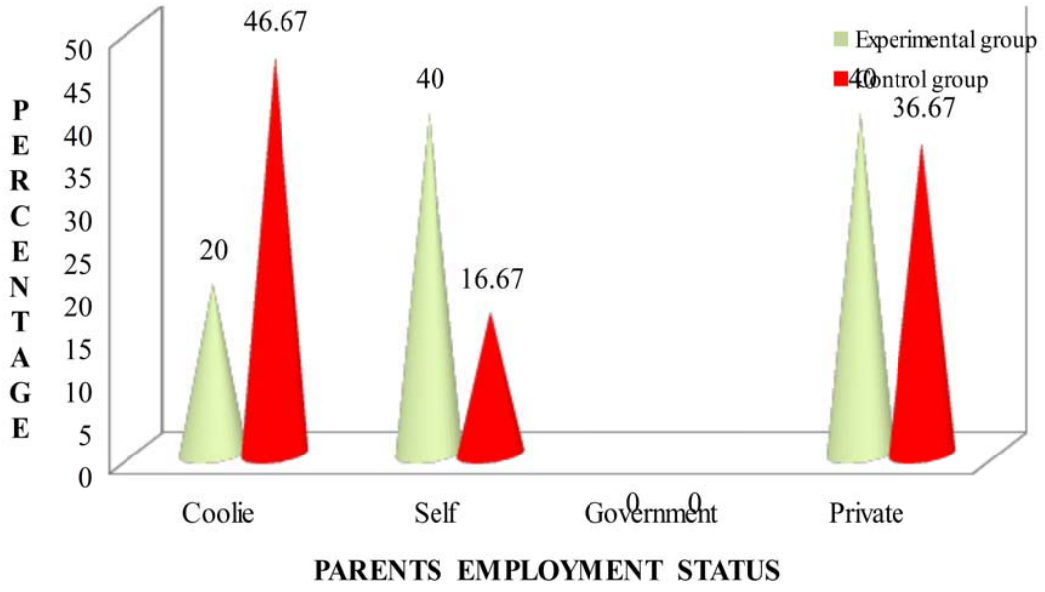


Figure 10: Percentage distributions of samples based on parents employment status

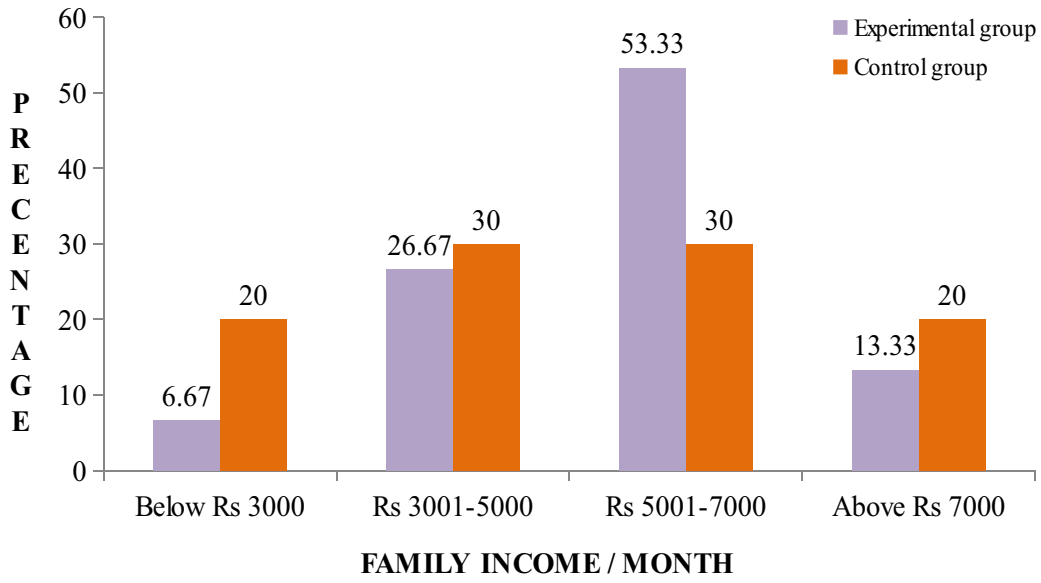


Figure 11: Percentage distribution of samples based on family income / month

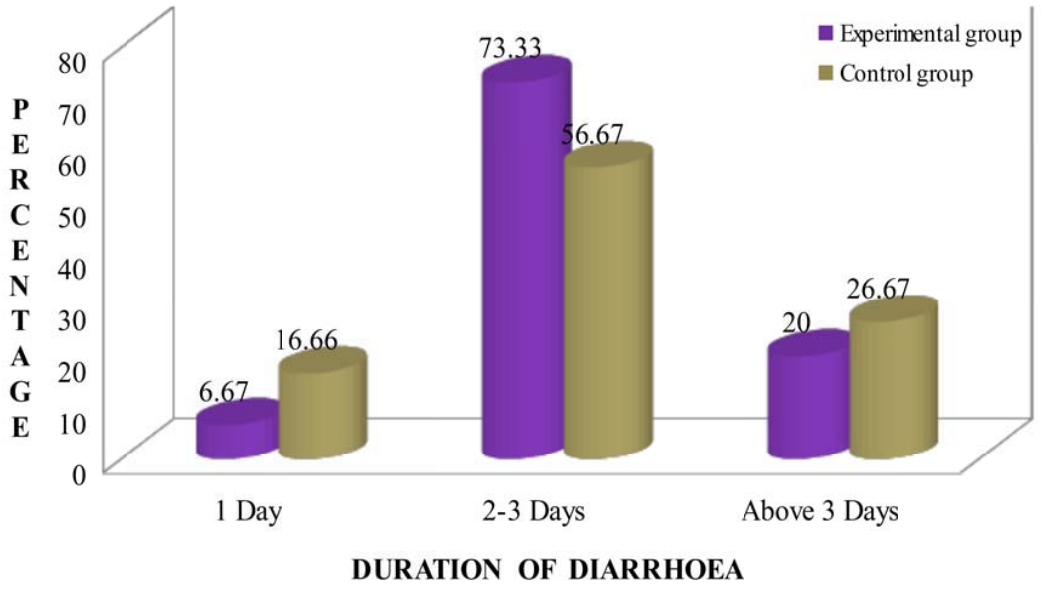


Figure 12: Percentage distributions of samples based on duration of diarrhoea

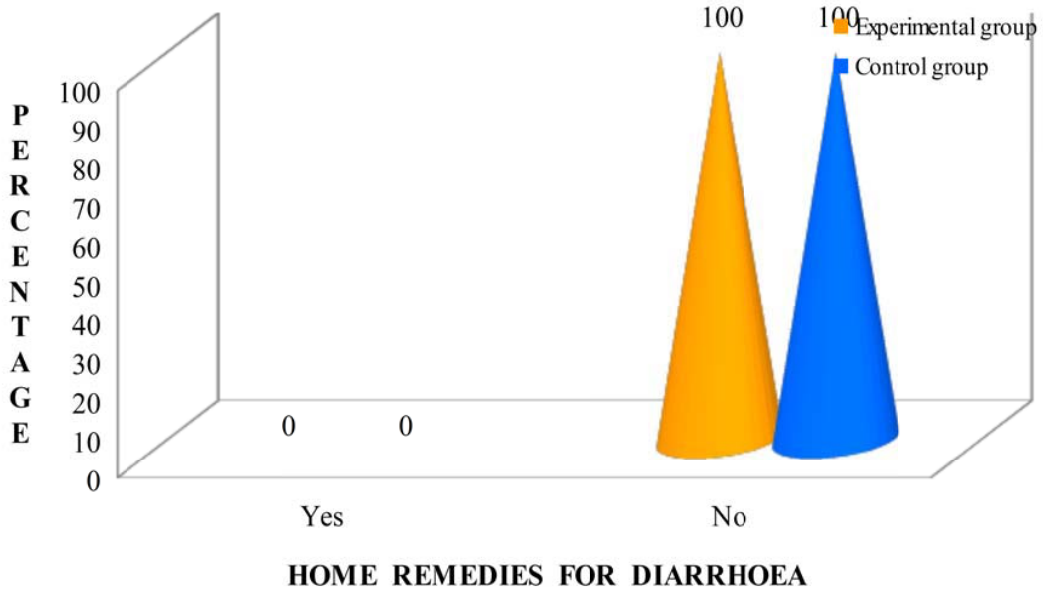


Figure 13: Percentage distributions of samples based on home remedies

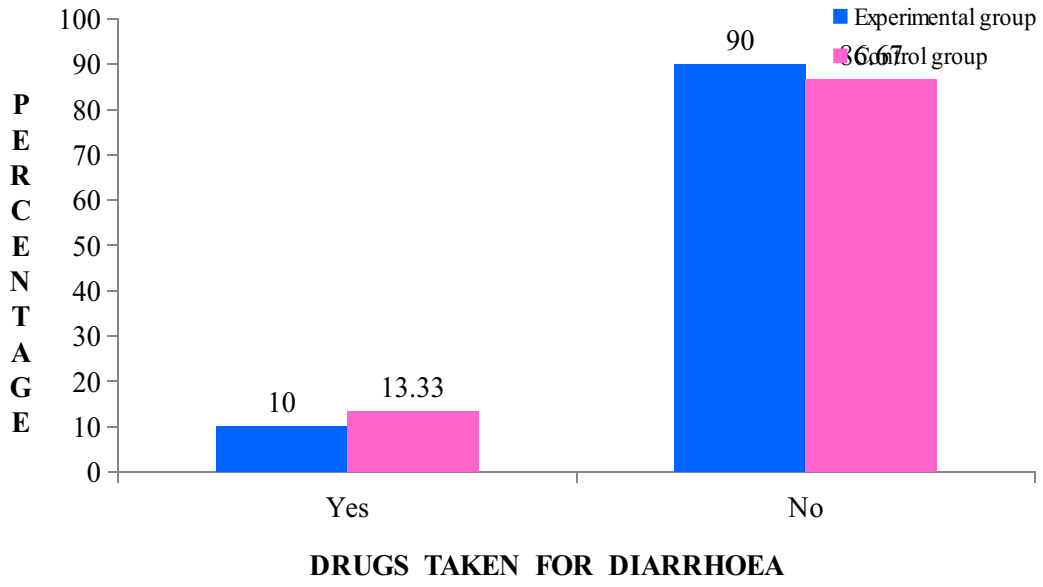


Figure 14: Percentage distributions of samples based on drugs given for diarrhoea

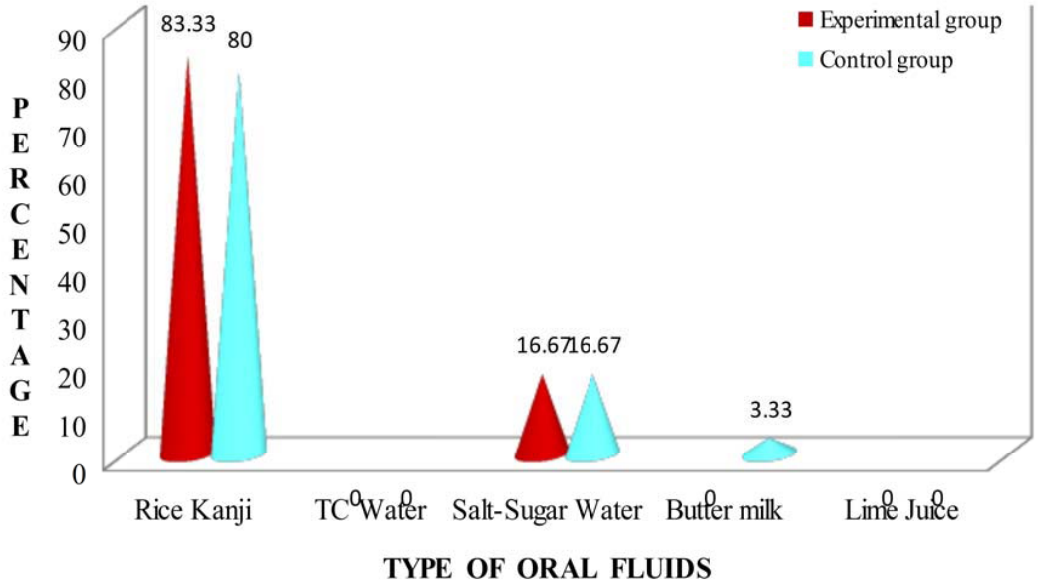


Figure 15: Percentage distributions of samples based on types of oral fluids

SECTION B - ASSESSMENT OF LEVEL OF DIARRHOEA AMONG CHILDREN OF EXPERIMENTAL AND CONTROL GROUP

Table- 2: Frequency and percentage distribution of pre and post test level of diarrhoea among children in the experimental group.

(N =30)

S.No	Level of diarrhoea	Pre test		Post test	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Normal bowel pattern	-	-	18	60
2.	Mild diarrhoea	6	20	12	40
3.	Moderate diarrhoea	24	80	-	-
4.	Severe diarrhoea	-	-	-	-

Table 2 reveals the frequency and percentage of pre and post test level of diarrhea among children in the experimental group.

With regard to the pretest level of diarrhoea among children aged 1-5 years in experimental group, none of the subjects had normal bowel pattern, 6 (20%) subjects had mild diarrhoea, 24 (80%) subjects had moderate diarrhoea and none of the subjects had severe diarrhoea. whereas in the post test level of diarrhoea among children aged 1-5 years in the experimental group, 18(60%) subjects had normal bowel pattern, 12(40%) subjects had mild diarrhoea and none of the subjects had moderate and severe diarrhoea .

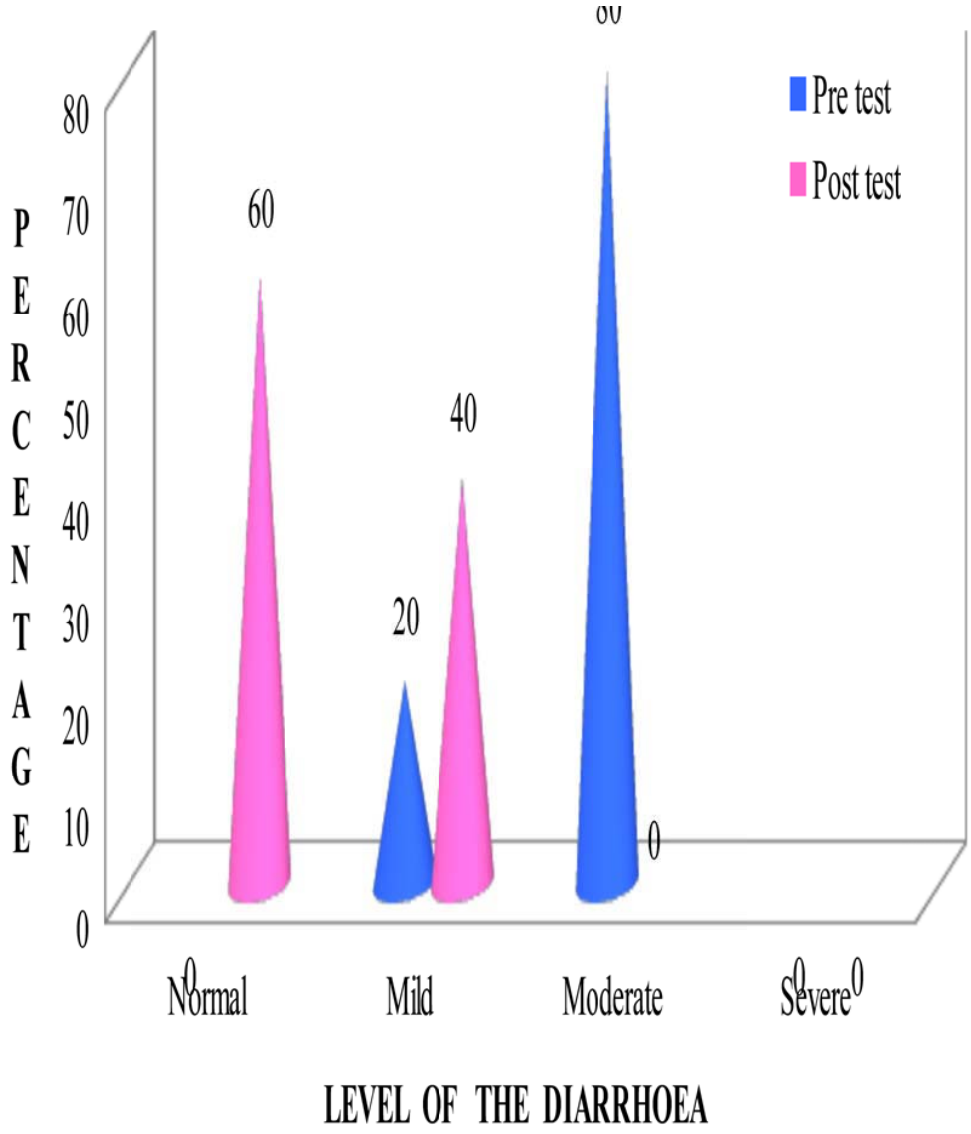


Figure: 16 Frequency and percentage distribution of pre and post test level of diarrhoea among children in experimental group.

Table -3 Frequency and percentage distribution of pre and post test level of diarrhoea among children in the control group.

(N =30)

S. No	Level of diarrhea	Pre test		Post test	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Normal bowel pattern	-	-	-	-
2.	Mild diarrhoea	7	23.33	13	43.33
3.	Moderate diarrhoea	23	76.67	17	56.67
4.	Severe diarrhoea	-	-	-	-

Table 3 shows the frequency and percentage of pre and post test level of diarrhoea among children in the control group.

With regard to the pretest level of diarrhoea among children in the control group, none of the subjects had normal bowel pattern, 7(23.33%) subjects had mild diarrhoea, 23(76.67%) subjects had moderate diarrhoea and none of subjects had severe diarrhoea. whereas in the post test level of diarrhoea in the control group, none of the subjects had normal diarrhoea,13(43.33%) subjects had mild diarrhoea, 17(56.67%) subjects had moderate diarrhoea and none of the subjects had severe diarrhoea.

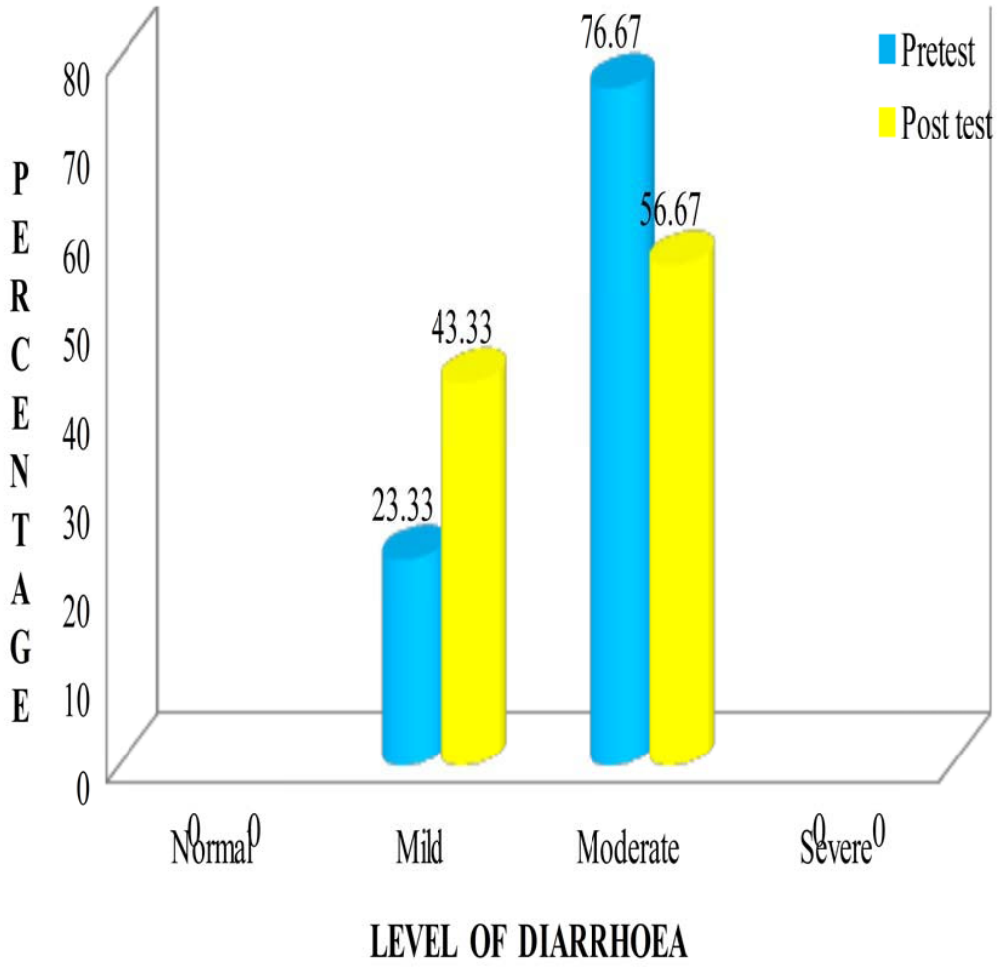


Figure: 17 Frequency and percentage distribution of pre and post test level of diarrhoea among children in control group.

SECTION C - COMPARISON OF LEVEL OF DIARRHOEA AMONG CHILDREN BETWEEN THE EXPERIMENTAL AND CONTROL GROUP.

Table - 4: Comparison of mean and standard deviation of post test level of diarrhoea among children between the experimental and control group.

(N=30)

S. No	Group	Mean	Standard deviation	't' Value
1.	Experimental group	3.04	1.403	36.36
2.	Control group	7.06	1.500	*S

***S-** Significant P<0.05 level

Table 4 depicts the comparison of post test level of diarrhoea between experimental and control group.

With regard to experimental group the post test mean value was 3.04 with standard deviation of 1.403. In control group the mean value was 7.06 with standard deviation of 1.500. The calculated 't' value was 36.36 indicating that there was a significant difference in post test level of diarrhoea among children aged 1-5 years between the experimental and control group at p<0.05 level.

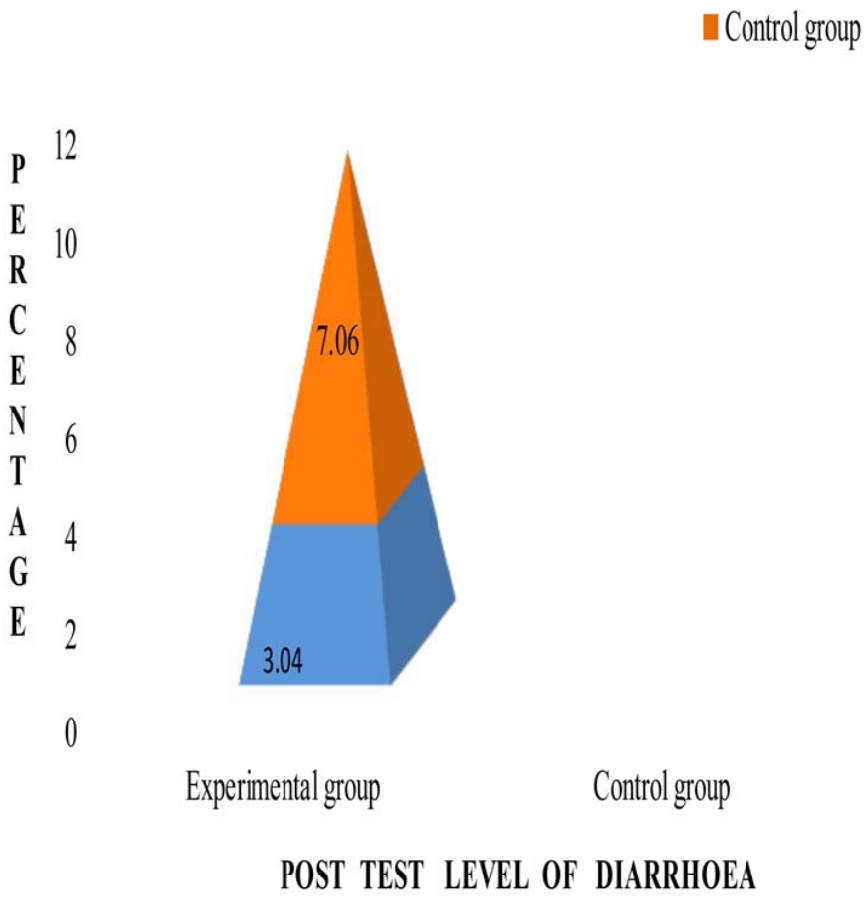


Figure: 18 Comparison of post test level of diarrhoea among children between the experimental and control group.

Table: 5 Comparison of Mean and Standard deviation of level of diarrhoea at different time interval for the children in experimental group.

(N=30)

Assessment	Mean	SD	Mean difference	Paired 't' value	Statistical result
Pre test	20.76	1.731	(1&2) 4.70	9.532	p<0.05
Day I	16.06	1.615	(2&3) 5.68	7.891	p<0.05
Day II	10.38	1.471	(3&4) 5.85	5.310	p<0.05
Day III	4.53	1.409	(1&4) 16.23	2.612	p<0.05

The above table shows that the mean and standard deviation of level of diarrhoea at different time interval for the children in experimental group.

The mean and standard deviation of level of diarrhoea during the pretest was 20.76 and 1.731, during the day I was 16.06 and 1.615, during the day II was 10.38 and 1.471, during the day III was 4.53 and 1.409 in the experimental group.

The mean difference and calculated 't' value between the pre test and day I was 4.70 and 9.532, between the day I and day II was 5.68 and 7.891, between the day II and day III was 5.85 and 5.310, and between the day I and day III was 16.23 and 2.612 at the 0.05 level of significance.

Table: 6 Comparison of mean and standard deviation of first day and second day post test level of diarrhoea among children in the experimental group and control group

(N=60)

Level of diarrhoea	Experimental group			Control group		
	Mean	**SD**	**Mean difference**	**Mean**	**SD**	**Mean difference**
Day I	16.06	1.615	5.68	18.5	1.702	3.07
Day II	10.38	1.471		15.43	1.630	

The above table shows that comparison of mean and standard deviation of first day and second day post test level of diarrhoea among children aged 1-5 years in the experimental group.

The mean and standard deviation of level of diarrhoea during the first day post test was16.06 and 1.615, second day post test was 10.38 and 1.471 with mean difference 5.68 in the experimental group.

The mean and standard deviation of level of diarrhea during the first day post test was 18.5 and 1.702, second day post test was 15.43 and 1.630 with mean difference 3.07 in the control group.

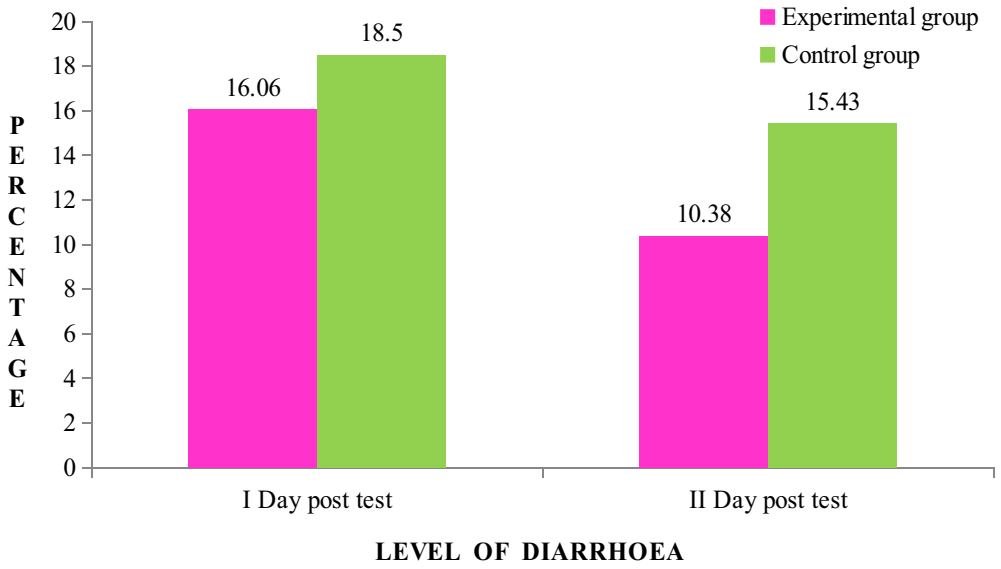


Figure 19: Comparison of mean and standard deviation of first day and second day post test level of diarrhoea among children in the experimental group and control group

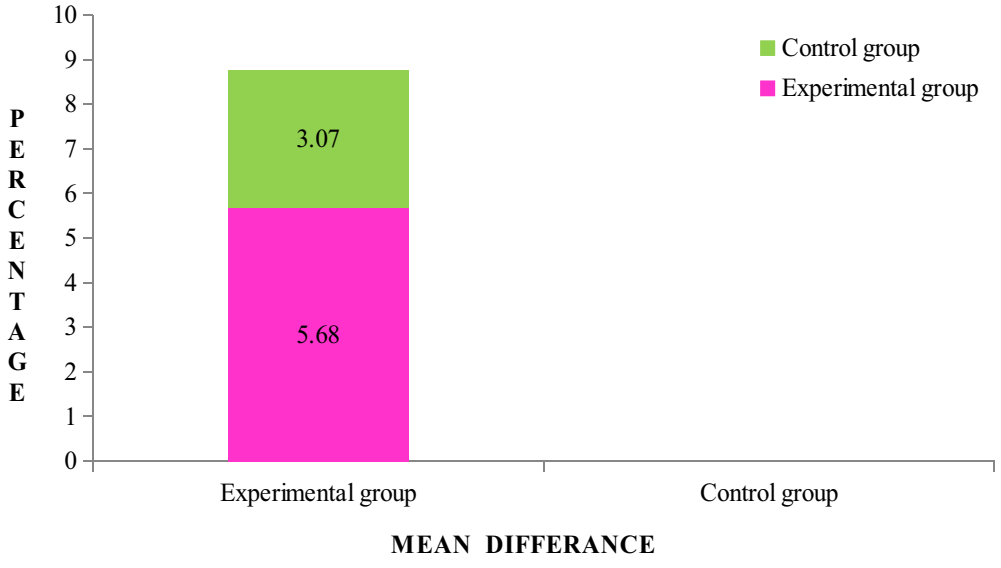


Figure 20: Comparison of improvement for level of diarrhoea between first day and second day post test in the experimental and control group

Table: 7 Comparison of mean and standard deviation of first day and third day post test level of diarrhoea among children in the experimental group and control group

(N=60)

Level of diarrhoea	Experimental group			Control group		
	Mean	**SD**	**Mean difference**	**Mean**	**SD**	**Mean difference**
Day I	16.06	1.615	11.53	18.5	1.702	5.94
Day III	4.53	1.409		12.56	1.509	

The above table shows that the comparison of mean and standard deviation of first day and third day post test level of diarrhea among children in the experimental group.

The mean and standard deviation of level of diarrhoea during the first day post test was 16.06 and 1.615, third day post test was 4.53 and 1.409 with mean difference 11.53 in the experimental group.

The mean and standard deviation of level of diarrhoea during the first day post test was 18.5 and 1.702, third day post test was 12.56 and 1.509 with mean difference 5.94 in the control group.

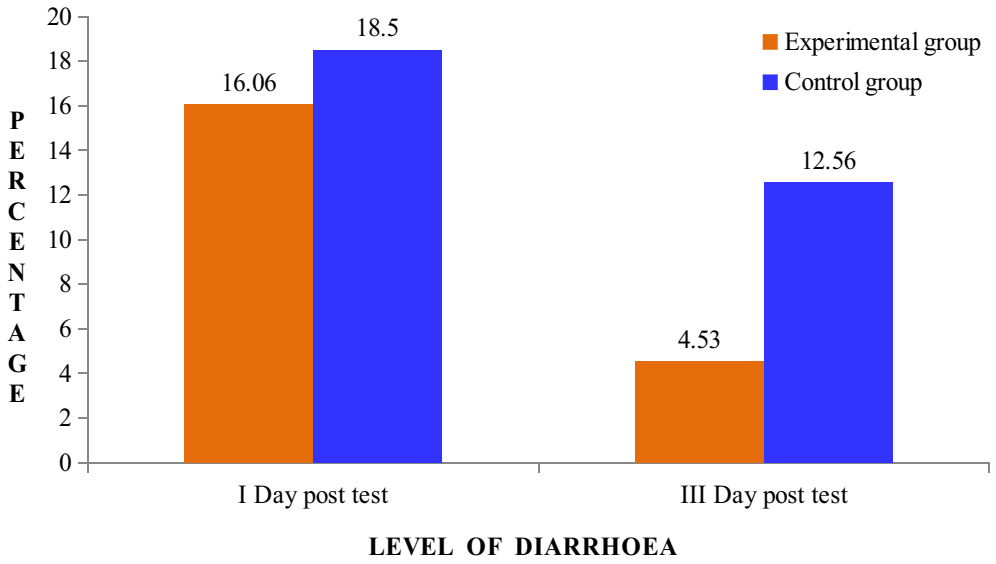


Figure 21: Comparison of mean and standard deviation of first day and third day post test level of diarrhoea among children in the experimental group and control group

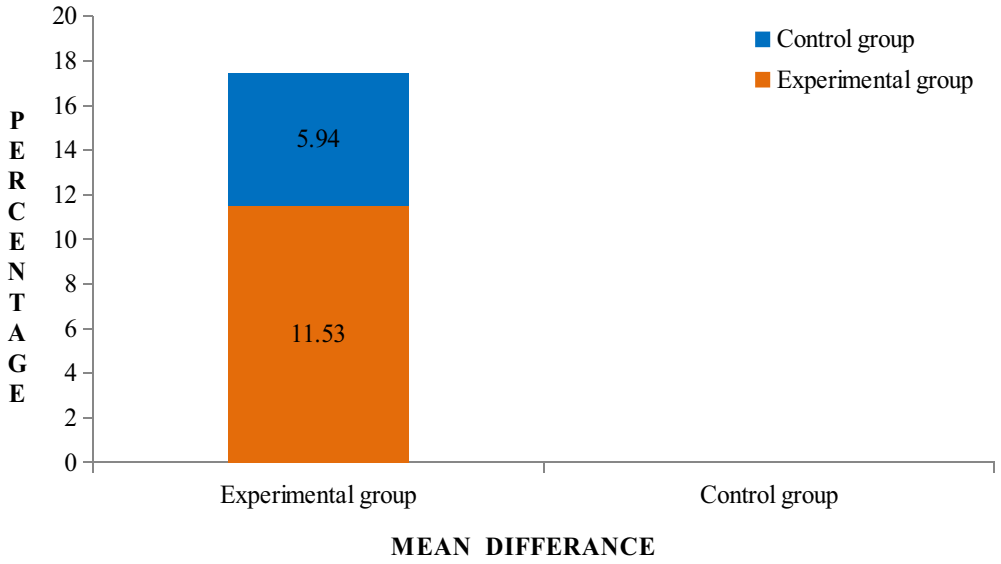


Figure 22: Comparison of improvement for level of diarrhoea between first day and third day post test in the experimental and control group

Table: 8 Comparison of mean and standard deviation of second day and third day post test level of diarrhoea among children in the experimental group and control group

(N=60)

Level of diarrhoea	Experimental group			Control group		
	Mean	**SD**	**Mean difference**	**Mean**	**SD**	**Mean difference**
Day II	10.38	1.471	5.85	15.43	1.630	2.87
Day III	4.53	1.409		12.56	1.509	

The above table shows that the comparison of mean and standard deviation of second day and third day post test level of diarrhoea among children in the experimental group.

The mean and standard deviation of level of diarrhoea during the second day post test was 10.38 and 1.471, third day post test was 4.53 and 1.409 with mean difference 5.85 in the experimental group.

The mean and standard deviation of level of diarrhoea during the second day post test was 15.43 and 1.630 and third day post test was 12.56 and 1.509 with mean difference 2.87 in the control group.

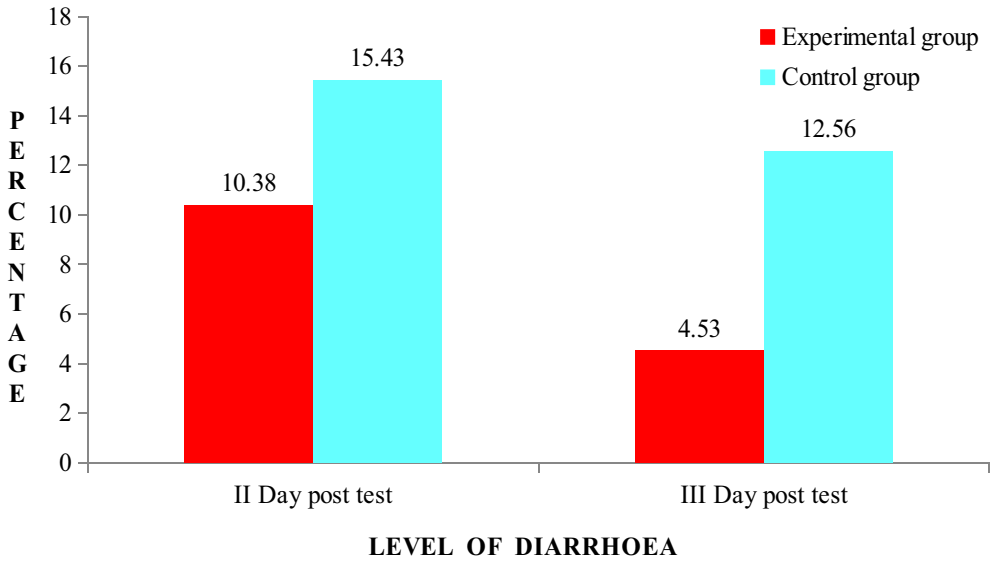


Figure 23: Comparison of mean and standard deviation of second day and third day post test level of diarrhoea among children in the experimental group and control group

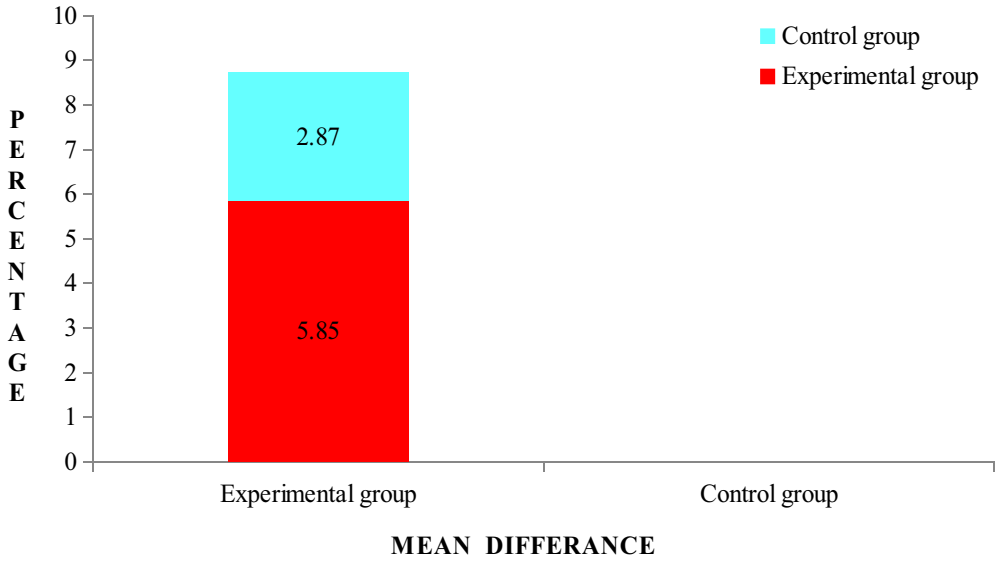


Figure 24: Comparison of improvement for level of diarrhoea between second day and third day post test in the experimental and control group

SECTION D - ASSOCIATION OF POST TEST LEVEL OF DIARRHOEA AMONG CHILDREN OF THE EXPERIMENTAL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table -9: Association of post test level of diarrhoea among children with their selected demographic variables of experimental group.

(N= 30)

S No	Demographic variable	Bowel pattern								χ^2 Value
		Normal		Mild diarrhea		Moderate diarrhoea		Severe diarrhea		
		f	%	f	%	f	%	f	%	
1.	**Age in years**									0.362
	1-3 years	11	36.6	6	20	0	0	0	0	d(f)=1
	4-5years	7	23.3	6	20	0	0	0	0	**#NS**
2.	**Sex**									0.814
	Male	9	30	8	26.6	0	0	0	0	d(f)=1
	Female	9	30	4	13.3	0	0	0	0	**#NS**
3.	**Religion**									
	Hindu	11	36.6	7	23.3	0	0	0	0	1.759
	Christian	2	6.66	0	0	0	0	0	0	d(f)=2
	Muslim	5	16.6	5	16.6	0		0	0	**#NS**
4.	**Type of family**									3.437
	Nuclear	11	36.6	11	36.6	0	0	0	0	d(f)=1

	Joint	7	23.3	1	3.33	0	0	0	0	**#NS**
5.	**Area of living**									0.000
	Rural	18	60	12	40	0	0	0	0	d(f)=3
	Urban	0	0	0	0	0	0	0	0	**#NS**
6.	**Education of mother**									
	Primary	4	13.3	0	0	0	0	0	0	6.001
	Secondary	9	30	5	16.6	0	0	0	0	d(f)=6
	Higher secondary	4	13.3	7	23.3	0	0	0	0	**#NS**
	Graduate	1	3.34	0	0	0	0	0	0	
7.	**Parents employment**									
	Coolie	6	20	0	0	0	0	0	0	5.694
	Self	5	16.7	7	23.3	0	0	0	0	d(f)=3
	Government	0	0	0	0	0	0	0	0	**#NS**
	Private	7	23.3	5	16.7	0	0	0	0	
8.	**Family income**									
	Below Rs 3000	2	6.67	0	0	0	0	0	0	
	3001- 5000	7	23.3	1	3.33	0	0	0	0	5.786
	5001- 7000	7	23.3	9	30	0	0	0	0	d(f)=3
	Above 7000	2	6.67	2	6.67	0	0	0	0	**#NS**
9.	**Duration of diarrhea**									1.717
	1Day	1	3.33	1	3.33	0	0	0	0	d(f)=2
	2-3 Days	12	40	10	33.4	0	0	0	0	**#NS**
	Above 3 Days	5	16.7	1	3.33	0	0	0	0	

10.	**Any home remedies**									0.000 d(f)=3
	Yes	0	0	0	0	0	0	0	0	**#NS**
	No	18	60	12	40	0	0	0	0	
11.	**Any drugs for diarrhoea**									0.061
	Yes	2	6.67	1	3.33	0	0	0	0	d(f)=1
	No	16	53.3	11	36.7	0	0	0	0	**#NS**
12.	**Type of oral fluids**									
		15	50	10	33.3	0	0	0	0	0.678
	Rice kanji	0	0	0	0	0	0	0	0	d(f)=2
	TC water	2	6.67	3	10	0	0	0	0	**#NS**
	Salt sugar water	0	0	0	0	0	0	0	0	
	Butter milk	0	0	0	0	0	0	0	0	
	Lime juice									

***S-** Significant #**NS -** Non significant P<0.05

The above table 9 depicts that there was no significant association of post test level of diarrhoea among children aged 1-5 years in the experimental group with their demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids given at p<0.05 level.

Table -10: Association of post test level of diarrhoea among children with their selected demographic variables of control group.

(N= 30)

S	Demographic variable	Bowel pattern				χ^2 Value
		Normal	Mild diarrhea	Moderate diarrhoea	Severe diarrhea	

no		f	%	f	%	f	%	f	%	
1.	**Age in years**									0.475
	1-3 years	0	0	6	20	10	33.3	0	0	d(f)=1
	4-5years	0	0	7	23.3	7	23.3	0	0	**#NS**
2.	**Sex**									0.475
	Male	0	0	7	23.3	7	23.3	0	0	d(f)=1
	Female	0	0	6	20	10	33.3	0	0	**#NS**
3.	**Religion**									
	Hindu	0	0	6	20	9	30	0	0	1.919
	Christian	0	0	4	13.3	7	23.3	0	0	d(f)=2
	Muslim	0	0	3	3.33	1	3.33	0	0	**#NS**
								0		
4.	**Type of family**									0.272
	Nuclear	0	0	8	26.7	12	40	0	0	d(f)=1
	Joint	0	0	5	16.7	5	16.7	0	0	**#NS**
5.	**Area of living**									0.000
	Rural	0	0	0	0	0	0	0	0	d(f)=2
	Urban	0	0	13	43.3	17	56.7	0	0	**#NS**
6.	**Education of mother**									
	Primary	0	0	4	13.3	4	13.3	0	0	0.307
	Secondary	0	0	5	16.7	8	26.7	0	0	d(f)=6
	Higher secondary	0	0	3	10	4	13.3	0	0	**#NS**
	Graduate	0	0	1	3.33	1	3.33	0	0	

7.	**Parents employment**									
	Coolie	0	0	6	20	8	26.7	0	0	0.785
	Self	0	0	3	10	2	6.67	0	0	d(f)=3
	Government	0	0	0	0	0	0	0	0	**#NS**
	Private	0	0	4	13.3	7	23.3	0	0	
8.	**Family income**									
	Below Rs 3000	0	0	2	6.67	4	13.3	0	0	
	3001- 5000	0	0	5	16.7	4	13.3	0	0	1.041
	5001- 7000	0	0	4	13.3	5	16.7	0	0	d(f)=3
	Above 7000	0	0	2	6.67	4	13.3	0	0	**#NS**
9.	**Duration of diarrhea**									0.229
	1Day	0	0	2	6.67	3	10	0	0	d(f)=2
	2-3 Days	0	0	8	26.7	9	30	0	0	**#NS**
	Above 3 Days	0	0	3	10	5	16.7	0	0	
10.	**Any home remedies**									0.000 d(f)=2
	Yes	0	0	0	0	0	0	0	0	**#NS**
	No	0	0	13	43.3	17	56.7	0	0	
11.	**Any drugs for diarrhoea**									0.061
	Yes	0	0	2	6.67	2	6.67	0	0	d(f)=1
	No	0	0	11	36.7	15	50	0	0	**#NS**

12.	**Type of oral fluids** Rice kanji TC water Salt sugar water Butter milk Lime juice	0 0 0 0 0	0 0 0 0 0	9 0 3 1 0	30 0 10 3.33 0	15 0 2 0 0	50 0 6.67 0 0	0 0 0 0 0	0 0 0 0 0	2.205 d(f)=2 **#NS**

***S-** Significant #**NS -** Non significant P<0.05

The above table 10 depicts that there was no significant association of post test level of diarrhoea among children aged 1-5 years in the control group with their selected demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids given at $p<0.05$ level.

CHAPTER-V

DISCUSSION

This chapter deals with the result of the data analysis to evaluate the effectiveness of Pomegranate Skin Decoction in reducing the level of diarrhoea among the children aged 1-5 years who attended OPD in Vasudevanallur Primary Health Centre and Karivalamvanthanallur Primary Health Centre at Thirunelveli District. The discussion is based on the objectives of the study and hypothesis specified in the study.

MAJOR FINDINGS OF THE STUDY

- Majority of the children, 18 (60%) were between the age group of 1-3 years in the experimental group.

- Maximum of the children, 16 (33.33%) were between the age group of 1-3 years in the control group.
- Most of the children, 17(56.67%) were males in the experimental group.
- With regard to the sex of children, 16(53.33%) were females in the control group.
- Most of the children, 18(60%) were Hindu in the experimental group.
- With regard to the religion of children, 15(50%) were Hindu in the control group.
- Maximum of the children, 22(73.33%) were from nuclear family in the experimental group.
- With regard to the type of family, 20(66.67%) were from nuclear family in the control group.
- All the children in the experimental and control group 60 (100%) were living in the rural area.
- With regards to the education level of the mothers, 14 (46.67%) had the secondary education in the experimental group.
- With regards to the education level of the mothers, 13 (43.33%) had the secondary education in the control group.
- Majority of the parents employment status, 12 (40%) were working in private company in the experimental group.
- With respects to the parents employment status, 14 (46.67%) were working as a coolie in the control group.
- With regard to the family income, 16 (53.33%) was between Rs.5001-7000 in the experimental group.

- With regard to the family income, 9 (30%) was between Rs.3001-5000 in the control group.
- Most of the children, 22 (73.33%) had 2-3 days diarrhoea in the experimental group.
- Majority of the children, 17 (56.67%) had 2-3 days diarrhoea in the control group.
- All the children in the experimental and control group 60 (100%) were not received any home remedies.
- Majority of the children, 27 (90%) were not received any drugs in the experimental group.
- Most of the children, 26 (86.67%) were not received any drugs in the control group.
- Majority of the children, 25 (83.33%) were received rice kanji in the experimental group.
- Majority of the children, 24 (80%) were received rice kanji in the control group.
- The mean and standard deviation of level of diarrhoea during the pretest was 20.76 and 1.731, during the day I was 16.06 and 1.615, during the day II was 10.38 and 1.471, during the day III was 4.53 and 1.409 in the experimental group. The mean difference and calculated 't' value between the pre test and day I was 4.70 and 9.532, between the day I and day II was 5.68 and 7.891, between the day II and day III was 5.85 and 5.310, and between the day I and day III was 16.23 and 2.612 at the 0.05 level of significance.
- The calculated 't' value between the post test level of diarrhoea among the experimental group and control group was 36.36.

- There was no significant association between the post test level of diarrhoea among children with their selected demographic variables in the experimental group and control group.

The result of the study has been discussed based on the objectives stated for the study.

The first objective of the study was to assess the pre and post test level of diarrhoea among children in the experimental and control group.

Regarding the pre test level of diarrhoea among the experimental group, none of the subjects had normal bowel pattern, 6 (20%) subjects had mild diarrhoea, 24 (80%) subjects had moderate diarrhoea and none of the subjects had severe diarrhoea.

Regarding the post test level of diarrhoea among the experimental group, 9 (30%) subjects had normal bowel pattern, 21 (70%) subjects had mild diarrhoea and none of the subjects had moderate and severe diarrhoea.

Regarding the pre test level of diarrhoea among the control group, none of the subjects had normal bowel pattern, 7 (23.33%) subjects had mild diarrhoea, 23 (76.67%) subjects had moderate diarrhoea and none of the subjects had severe diarrhoea.

Regarding the post test level of diarrhoea among the control group, none of the subjects had normal bowel pattern, 13 (43.33%) subjects had mild diarrhoea,17 (56.67%) subjects had moderate diarrhoea and none of the subjects had severe diarrhoea.

The above findings was supported by **Chithralekha P L (2012)** conducted a study to assess the effect of pomegranate skin decoction on diarrhea and dehydration among 40 children with diarrhoea, selected by purposive sampling method, was

conducted in CBM homeo hospital, Alappuzha. It was found that there was a significant reduction in diarrhoea and dehydration after administration of pomegranate skin decoction ($p<0.05$). Administration of pomegranate skin decoction was independently effective among children in reducing diarrhoea and dehydration ($p<0.05$).

The second objective of the study was to find out the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in the experimental and control group.

The experimental group showed that the mean value of level of diarrhoea is 3.04 with standard deviation 1.403 in the post test level. The control group showed a mean value of 7.6 with standard deviation 1.500 in the post test level. The calculated 't' value was 36.36.

This indicating that there was a significant difference in post test level of diarrhoea among children between experimental and control group and it was retained at $p <0.05$ level.

From above analysis and interpretation the hypothesis (H_1), "Mean post test level of diarrhoea among children in experimental group was significantly lower than the mean post test level of diarrhea in control group" was accepted.

The above findings was supported by **Raji Kaliyaperumal, (2010)** did a study on effect of pomegranate skin extraction for patients with diarrhoea. The sample consists of 40 children, between the age group of 1-8 years with acute diarrhoea .The treatment group received pomegranate skin extraction twice a day for 3 days. Level of diarrhoea was assessed before and 1 hour after the intervention by using WHO

diarrhea assessment scale. Paired 'T' test was used to assess the effect of pomegranate skin extraction both the group. In the experimental group 'T' value is significantly higher than the tabulated value at 5%, 'χ^2' test was used to assess the difference between experimental and control group, this shows significantly higher than the tabulated value at 5%

The third objective of the study was to compare the pre test and post test level of diarrhoea among children in the experimental group.

The pretest mean score was 20.76 with standard deviation of 1.731 and the post test mean day 1, 2, 3, was 16.06, 10.38, 4.53, with standard deviation of 1.615, 1.471, 1.409 respectively in the experimental group. The mean difference was 9.53 which showed that there was a significant difference between the pre and post test level of diarrhoea among children in the experimental group.

From the above analysis and interpretation the hypothesis (H_2), "Mean post test level of diarrhoea among children in experimental group was significantly lower than their mean pre test level." was accepted.

The above findings was supported by **Kaur U (2008)** conducted a study on effect of pomegranate peel extraction on diarrhoeal disease among under five children. This was a randomized, experimental prospective study in a tertiary hospital conducted from January 2007 to June 2008. The sample was made up of 44 participants. Intervention given for only experimental group children for 3 days. Pomegranate peel extraction significantly reduced the level of diarrhoea. There were differences in the level of diarrhoea in the experimental group (P=.157) when compared with the control group. He reported that pomegranate peel extraction is very useful in stopping diarrhea.

The fourth objective of the study was to associate the post test level of diarrhoea among children in the experimental group with their selected demographic variables (age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluid)

With regard to associate the post test level of diarrhoea among children with their selected demographic variables in experimental group**.** The calculated chi square value was 0.362, 0.814, 1.759, 3.437, 0.000, 6.001, 5.694, 5.786, 1.717, 0.000, 0.061, and 0.678 respectively. Which showed that there was no association between age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids in the experimental group.

Hence the research hypothesis (H_3) stated that "There was a significant association in the post test level of diarrhea among children with their selected demographic variables in experimental group" was rejected at $p<0.05$ level.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATIONS AND RECOMMENDATIONS

This chapter deals with summary, findings, conclusion, implications, limitations and recommendations, which creates a base for evidence based practice.

SUMMARY

This study was under taken to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in selected primary health centre at Thirunelveli District.

Health is an invaluable part of a human beings life. Without it, people can become uninspired, de-motivated, and unable to thrive or succeed. Good health favors personal efficiency and contributes to an individual's lifespan and has much to do with happiness and success. But diseases affect people not only physically, and also

emotionally and socially. Diseases can alter one's perspective of the life. It may be acute or chronic.

The experience of diarrhoea is complex; involving emotional and cognitive components. Diarrhoea referred to as an increase in frequency of stool, stool volume or looseness of stool. It is described quantitatively as more than 200 gram of stool per day. The incidence of diarrhoea may be high as 6 – 12 episodes per children per year in most developing countries and the total diarrhoea morbidity for a given child may be high in first 2 years of age, children with diarrhoea for 10-20 % of their first 3 years of age.

The Objectives of the study were,

1. To assess the pre and post test level of diarrhoea among children in experimental and control group.
2. To find out the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among experimental and control group.
3. To compare the pre test and post test level of diarrhoea among children in experimental group.
4. To associate the post test level of diarrhoea among children in experimental group and control group with their selected demographic variables.

Research hypothesis of the study were,

H_1: The mean post-test level of diarrhoea among children in experimental group was significantly lower than the mean post-test level of diarrhoea in the control group.

H_2: The mean post-test level of diarrhoea among children was significantly lower than the mean pre-test level of diarrhoea in the experimental group.

H_3: There was a significant association between post-test level of diarrhoea among children in experimental and control group with their selected demographic variables such as age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids.

The assumptions of the study were,

- Level of diarrhoea was differ from children to children.
- Pomegranate skin decoction helps to reduce the level of diarrhoea in children

The review of literature related studies which provided a strong foundation for this study. It provided the basis for the conceptual frame work and formation of the tool. The review of literature for this study has related to three headings.

Section A: Studies related to prevalence and risk factors of diarrhoea among children.
Section B: Studies related to the treatment of diarrhoeal problem among children.
Section C: Studies related to the pomegranate skin decoction.
Section D: Studies related to the effect of pomegranate skin decoction on reducing the level of diarrhoea among children.

The conceptual frame work of this study was based on Modified Widenbach's helping art of clinical nursing theory and it provided a complete frame work for achieving the central purpose of the study. The research methodology adopted for the study was quasi experimental pre and post-test control group design.

The study was conducted in Vasudevanallur and Karivalamvanthanallur primary health centre. The Sample size for the study was 60, 30 persons were in

experimental group another 30 persons were in control group. The samples were selected based on the inclusion criteria by using non-probability purposive sampling technique.

Pilot study was conducted at Rayagiri primary health centre and the findings revealed that the tool was feasible, reliable and practicable to proceed with the main study.

The content validity of the tool was established by four experts from the community health nursing department, two medical expert.

The main study was conducted in Vasudevanallur and Karivalamvanthanallur primary health centre in Thirunelveli District. The total sample size was sixty samples who fulfilled the inclusive criteria were assigned to experimental group (n = 30) and in control group (n=30) by non-probability purposive sampling technique. The collected data was analyzed and interpreted based on the objectives by using descriptive and inferential statistics.

There was no association between the level of diarrhoea and age, sex, religion, type of family, area of living, educational status of mother, parents employment status, family income, duration of diarrhoea, any home remedies given, drugs used for diarrhoea, and types of oral fluids in the experimental group. Obtained chi square value was significant at 0.05 levels.

CONCLUSION

This study was assessed the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children.

The study findings revealed that there was a significant difference in the level of diarrhoea after administration of pomegranate skin decoction in the experimental group. On the basis of the study, the researcher concluded that administration of pomegranate skin decoction has a significant effect on reducing the level of diarrhoea.

IMPLICATION

Investigator has derived from the study the following implications that are vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

NURSING PRACTICE

- The nurses have a vital role in providing safe and effective nursing care to enhance reducing the level of diarrhoea among children.
- Pomegranate skin decoction can be facilitated by motivating the nurses to have an in depth knowledge in physiological considerations in control of diarrhoea.
- Develop skill in providing efficient nursing care for reducing the level of diarrhoea and teach the patients about the effectiveness of pomegranate skin decoction for reducing the level of diarrhoea.
- Nurses need to practice evidence based approach while giving care to the diarrhoeal children.

NURSING EDUCATION

Before nurses enter into their practice, they need to have strong foundation in terms of education. Nurse educators not only have a role to educate the student but

also to educate the staff nurses in order to prepare them and update their knowledge, to enhance the application of theory into practice. The education in the clinical area should be provided in the form of:

1. Incorporate the administration of pomegranate skin decoction for diarrhoeal children in the curriculum of nursing with clinical experience.

2. Motivate students to use the pomegranate skin decoction in reduction of diarrhoea.

3. Conduct workshops or conferences for students regarding the use of complementary and pomegranate skin decoction in day today nursing practice.

4. The nurse educators need to be equipped with adequate knowledge regarding pomegranate skin decoction for diarrhoeal children.

NURSING ADMINISTRATION

1. Conduct in service education programs and continuing education programs related to pomegranate skin decoction for effective management for diarrhoea among children.

2. Collaborate with governing bodies for the formulation of standard policies and protocols regarding pomegranate skin decoction on reducing the level of diarrhoea among children.

3. Provide more opportunities for nurses to attend training programs in effect of pomegranate skin decoction on reducing the level of diarrhoea among children.

4. Update the knowledge of staff nurse with in service education programs emphasizing various measures in reducing the level of diarrhoea.

5. Arrange and conduct workshops, conferences, seminars on pomegranate skin decoction on reducing the level of diarrhoea among children.

NURSING RESEARCH

1. Nurse researcher can disseminate the findings of the studies through conference, seminar and publishing in professional journals to the Community health nursing staff.

2. Nurse researcher can encourage conducting further researches related to pomegranate skin decoction intervention prior to other treatments.

3. The findings of the research study would help in building and strengthening the body of knowledge.

4. As a nurse researcher, promote more research on effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children.

5. Evidence based nursing practice must take higher profile in order to increase the knowledge about administration of pomegranate skin decoction on reducing the level of diarrhoea among children.

LIMITATION

During the period of study the limitations faced by the investigator were as follows,

1. Only limited literatures and studies were obtained from the Indian context.

2. Due to time constraints, the investigator was unable to take larger samples for the study.

RECOMMENDATIONS

Based on the findings of the present study the following recommendations are made:

1. The similar study can be conducted with large samples for better generalisation.

2. The study can be conducted to assess the knowledge and practice of nurses with regard to administration of pomegranate skin decoction on reducing the level of diarrhoea among children.

3. A comparative study can be conducted by using pomegranate skin decoction on reducing the level of diarrhoea among children in rural and urban area.

4. The same study can be repeated by a true experimental design to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children.

BIBLIOGRAPHY

BOOKS

1. Allan.H.(1981).*Primary care medicine*.(1st ed).USA: J.B.Lippincott company publications.
2. Ashalatha, P.R. (2006). *Text Book of Anatomy and Physiology for Nurses*.(1st ed). New Delhi: Jaypee Brothers Publications.
3. Barbara Kozier., Glenora Erb., Auder Berman.(2005). *Fundamental of nursing*. (4th ed). Pearson. Education published.
4. Basvanthappa, B.T. (2007). *Fundamental of Nursing*.(2nd ed).New Delhi: Jaypee Brothers Publications.
5. Basvanthappa, B.T. (2007). *Nursing Research*.(2nd ed). New Delhi; Jaypee Brothers Publications.
6. Basvanthappa, B.T. (2007). *Nursing Theories*.(2nd ed). New Delhi: Jaypee Brothers Publications.
7. Black M. Joyce. (2005). *Medical Surgical Nursing*.(7th ed). Missouri: W.B.Saunders Company.
8. Brunner & Suddarth. (2008). *Medical Surgical Nursing*.(11th ed). New Delhi: Lippincott Company.
9. Chaudhari.(2006). Concise *Medical Physiology*.(5th ed). New Delhi: New Central Book Agency.
10. Chandramouli.(2010). *Text Book of Peadiatrics*.(3rd ed). New Delhi: Jaypee Brothers Publications.
11. Christopher. (1999). *Principles and Practice of Medicine*.(8th ed). Philadelphia: Churchill Livingston Publications.

12. Dr.A.P.Kulkarni (2002). *Text book of community Medicine*.(2nd ed). Philadelphia: Vora medical Publications.

13. Howard.J.K. (1987). *Text book of social Medicine*. (2nd ed). Philadelphia: Churchill Livingston Publications.

14. Hutcheson, Jones. (1981). *Alternative medicine* (2th ed). London: Croom Hein Company.

15. Joshi. (2006). *Peadiatric infectious disease guide for Nursing and Health Care.* (2nd ed).New Delhi: B.I Publications.

16. Linda, S., Williams. Paula.,D & Hopper . (2008). *Medical surgical nursing*. (1st ed). New Delhi: Jaypee Brothers Publications.

17. Linton. (2007). *Introduction to Medical Surgical Nursing*.(1st ed). Missouri: Elsevier Publications.

18. Lewis Sharon.(2002). *Medical Surgical Nursing*. (6th ed). Philadelphia: Mosby Publication.

19. Mahajan.B.K.(1997). *Methods in Biostatistics*. (6th ed). New Delhi: Jaypee Brothers Publications.

20. Martha, Raile Alligod.(1997). *Nursing Theory.* (1st ed). Missourie: Mosby Publications.

21. Mohanan., Sands. Neighbors. Marek & Greek.(2009).*Medical surgical nursing*. (8th ed).Mosby publication.

22. Murrey.J.F. Nadal.J.A(1994). *Text book of preventive social medicine*.(2nd ed). W.B.Saunders Publications.

23. Muthaya, N.M.(2010). *Human Physiology.* (1st ed). New Delhi: Jaypee Publication.

24. Pauling.M.C (2001). *Complementary therapies in nursing*.(1st ed). Australia: Augmed Company.

25. Polit, F., & Beck. (2008). *Nursing Research*.(8th ed). Philadelphia: Lippincott Williams &Wilkins Publications.

26. Phipps And Long.(1995). *Medical Surgical Nursing*.(7th ed). New Delhi: B.I Publications.

27. Potter A Patricia. (2000). *Fundamental of Nursing*.(6th ed). Missouri: Mosby Publication.

28. Ranjith.K. (2005*). Research methodology.* (2nd ed) New Delhi: Dorling Publication.

29. Ruth.T. (2005*). Fundamentals of Nursing*. (6th ed) Philadelphia: Mosby Publication.

30. Sembuligam.(2006). *Essential Of Medical Physiology*. (4th ed). New Delhi: Jaypee Brothers Publication.

31. Shafers. (1999). *Medical Surgical Nursing*.(7th ed). Philadelphia: Lippincott Company.

32. Smelter C.Suzanne. (2004). *Medical Surgical Nursing*.(8th ed). Philadelphia: Lippincott Company.

33. SundarRao. (2000). *An Introduction to Biostatistics*. (5th ed). New Delhi: Prentice Hall.

34. Susan, C& Dewitt. (2009). *Fundamental concepts and skills for nursing.* (3rd ed).New Delhi: Sounder's publication.

35. TNAI. (2005). *Fundamental of nursing.* (1st ed) Indian. TNAI publication.

36. Taylor. (1999). *Fundamentals of Nursing*.(6th ed). Philadephia: Lippincott Williams Publications.

JOURNALS

37. Levin.V, Walter, M. (2004). Worldwide prevalence of acute gastro enteritis *Journal of* acute gastro enteritis 22 (1), 14-21.
38. MenistraNasler, (2011). *The Journal of Alternative and Complementary Medicine on diarrhoea*. 17(5): 536-540.
39. FasilHahbaie, (2007). Effect of pomegranate peel on diarrhoea. *Journal of alternative medicine* 18(9): 67-70.
40. NouraBai, (2005). Treatment of acute gastro entiritis .*Journal of Alternative and Complementary Medicine in clinical practice* (11): 242-246.
41. SambronJerrilyn, (2006).Changes in dehydration. *Journal of Alternative and Complementary Medicine* (12).65-75.
42. Kaye., David Alan., (2008). Effect of pomegranate skin decoction on diarrhoea. *Journal of Alternative and Complementary Medicine* (14), 125–28.
43. Kevin L, (2009). An epidemiological study of acute gastro entiritis. *Journal of Medicine* 2(2), 2-6.
44. Kadav S, (2008). Prevalence and risk factor of diarrhoea. *Indian journal of medical research* (128), 612-620.
45. Karen Tu., (2008). Prevalence and incidence of gastro enteritis. *Canadian Medical Association of Journal* 178 (11).
46. IhabHajjar., (2006). Prevalence and incidence of diarrhoea. *Annual Review of Public Health* (27) 465-490.
47. SS., Reddy, GR., Prabhu. (2005). Prevalence and Risk Factors of diarrhoea in Chennai. *Indian journal of community medicine* 30 (3) 84-86.
48. Gupta.,R, (2005).Trends in acute gastro entiritis Epidemiology India. *Indian journal of medical science* 18(2) 83-88.
49. Oline, K.M.(2005). Effect of pomegranate skin extraction in diarrhea *Journal of Biological Research for Nursing*. 33(7).
50. Ahn, Y., Lee, J., (2001). prevalence, awareness, treatment, and control of diarrhoea. *Journal of human nursing*. 19(9) 1423-1432.
51. Ostchega Y, (2007). Trends in diarrhoea. *Journal of National Health and Nutrition Examination Survey* 55(7)1024-1026.
52. Malik, (2011). Prevalence of diarrhoea in India. *National Journal of Medicine* 2(1) 11-76.
53. KV.,Joshi, (2000). Prevalence of diarrhoea in Mumbai. *Indian journal of medical science* 54 (9), 480-483.

WEBSITES

54. All India Association of Advancing Research in diarrhoea. "*Impact of health among under five children*". Retrieved from http:/www .iaso. org

55. Centers for disease control and prevention.(1996). "diarrhoeal diseases" Retrieved from http://www.Indiandia.Com.

56. Lyola Malatini, (2012). Alternative Medicine ,Retrieved fromHentryEdriaan, (2007).*http//www.hyper.ahajournals.org.*

57. Willian.,E.D.,(2010) Epidemic of diarrhoeal diseases, Retrieved from *http://www.biomedcentral.com*.

58. Engen., (2010)., Effect of pomegranate skin decoction, Retrived from http://www.ncbi.nlm.nih.gov/pubmed.

APPENDIX-A

LETTER SEEKING AND GRANDING PERMISSION FOR CONDUCTING THE STUDY

SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University
K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377.
E - Mail : srikrncon@yahoo.com Web : srikrnaiducollegeofnursing.org

TO

The medical officer,

Primary health centre,

Karivalamvanthanallur.

Respected Sir / Madam,

Mrs.R.Kavitha is a bonafide student of our college studying in MSc(N) Programme. As a partial fulfillment of a university requirement for the award of the MSc(N) degree. She needs to conduct a research project.

Her choosen research project is as follows **"A study to assess the effectiveness of pomegranate skin decoction on diarrhoea among children in selected primary health centre at Thirunelveli district".**

She will abide by rules and regulation of the primary health centre and adhere to the policies during her period of study from 01.03.2015 – 31.03.2015. Permission may kindly be granted to her for conduction of the study at your esteemed centre.

Further detail of a proposal project will be furnished by the student personally, confidentially will be ensured in the research project.

Thanking you.

Yours faithfully,

MEDICAL OFFICER
Govt. Primary Health Centre
Karivalamvanthanallur

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753. Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.

SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph. : 04636 - 260950, Fax : 04636 - 260377.
E - Mail : srikrncon@yahoo.com Web : srikrnaiducollegeofnursing.org

To

The medical officer,

Primary health centre,

Vasudevanallur.

Respected Sir / Madam,

Mrs.R.Kavitha is a bonafide student of our college studying in M.Sc (N) Programme. As a partial fulfillment of a university requirement for the award of the M.Sc (N) degree. She needs to conduct a research project.

Her choosen research project is as follows **"A study to assess the effectiveness of pomegranate skin decoction on diarrhoea among children in selected primary health centre at Thirunelveli district".**

She will abide by rules and regulation of the primary health centre and adhere to the policies during her period of study from 01.03.2015 – 31.03.2015. Permission may kindly be granted to her for conduction of the study at your esteemed centre.

Further detail of a proposal project will be furnished by the student personally, confidentially will be ensured in the research project.

Thanking you.

Yours faithfully,

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753. Karivalam (Via)
Sankarankovil (T.K.) Tirunelveli Dt.

APPENDIX B

LETTER SEEKING EXPERTS OPINION FOR THE VALIDITY OF TOOL

FROM:

Mrs.R.Kavitha,

MSc Nursing II Year,

Sri.K.Ramachandran Naidu College of Nursing,

Sankarankovil.

TO:

Subject: Seeking validation of tool and content validity

Respected Madam / Sir,

I am II Year MSc Nursing student studying in Sri K Ramachandran Naidu college of Nursing, Sankarankovil, Tamilnadu Dr.MGR Medical University working on dissertation titied, ‘‘**A study to assess the effectiveness of pomegranate skin decoction on diarrhoea among children in selected primary health centre at Tirunelveli.** ’’This dissertation is to be submitted to the Tamilnadu Dr.M.G.R Medical University, as a partial fulfilment for the requirement of MSc Nursing degree. Hence I request you to kindly evaluate the tool items and give your valuable opinion and suggestions for improvement of this tool. I would be highly obliged and thankful to hear from you.

Thanking you in anticipation.

Yours sincerely,

(R.KAVITHA)

Enclosures:

Statement of the problem

Research tool

Scoring key

APPENDIX –C

CONTENT VALIDATION CERTIFICATE

I here by certify that I have validated the tool of Mrs.R.Kavitha II year MSc Nursing student of Sri.K Ramachandran Naidu College of Nursing who is undertaking the following study.

"A study to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in selected Primary Health Centre at Tirunelveli District."

Place: **Signature of the Expert**

Date:

Designation and Address:

APPENDIX -D

LIST OF EXPERTS FOR CONTENT VALITITY

Medical expert

1. **Dr.V.Raja Rathinam, MBBS,**
   Block medical officer,
   Primary health centre,
   Karivalamvandanallur.
2. **Dr. K.Selvarani, BHMS, MD,**
   Primary Health Centre,
   Karivalamvandhanallur.

Nursing experts

3. **Prof. Saramma Samuvel M.Sc.(N) , Ph..D(N),**
   Principal,
   R.V.S college of nursing,
   Sulur,Coimbatore.
4. **Prof. Margaret Ranjitham M.Sc.(N) , Ph..D(N),**
   Principal,
   Nehru nursing college,
   Post Box No 3, Nehru Nagar,
   Valliyoor, Tirunelveli.
5. **Prof. Prabu M.Sc.(N) , Ph..D(N),**
   HOD of Community Health Nursing,
   C. S. I. Jeyaraj Annapackiam college of nursing,
   Madurai.
6. **Mrs S.Anuradha Msc (N),**
   HOD of Community Health Nursing
   Sree Abirami College of Nursing
   Coimbatore

APPENDIX – E

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mrs.R.Kavitha,** II year. M.Sc., Nursing student of Sri. K. Ramachandran Naidu College of Nursing, Sankarankovil (Tk), Tirunelveli, has done a dissertation study on **"A study to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in selected Primary Health Centre at Tirunelveli District."**

This study was edited for English language appropriateness.

Signature

K.RAJA AMIRTHA PANDIAN

SEVENTH-DAY ADVENTIST
MATRIC HR.SEC. SCHOOL
PULIANGUDI - 627 855.

APPENDIX – F

INFORMED CONSENT

I, **Mrs.R.Kavitha,** M.Sc Nursing II Year student of Sri.K.Ramachandran Naidu College of Nursing, conducting **"A study to assess the effectiveness of pomegranate skin decoction on reducing the level of diarrhoea among children in selected Primary Health Centre at Tirunelveli District.".** As a partial fulfillment of the requirement for the degree of M.Sc Nursing under The Tamil Nadu Dr. M.G.R Medical University. The study participants will be assessed by Modified Gorelick Diarrhoea assessment scale for to know the level of diarrhoea.

I assure you that information obtained will be kept confidential. So, I request you to kindly cooperate with me and participate in this study by giving your frank and voluntary consent.

Thank you.

APPENDIX- G

COPY OF THE TOOL FOR THE DATA COLLECTION

SECTION A

It deals with the demographic variables

1. Age

    a) 1-3 Years

    b) 4-5 Years

2. Sex

    a) Male

    b) Female

3. Religion

    a) Hindu

    b) Christian

    c) Muslim

4. Type of family

    a) Nuclear

    b) Joint

5. Area of living

    a) Rural

    b) Urban

6. Educational status of the mother

    a) Primary

    b) Secondary

    c) Higher secondary

    d) Graduate and above

7. Parents employment status

a)Unemployed

b) Self

c) Government

d) Private

8. Family Income per month

a) Below 3000

b) 3001-5000

c) 5001-7000

d) Above 7000

9. Since how long baby is having diarrhoea

a) 1Day

b) 2-3 Days

c) Above three days

10. Did the baby receive any home remedies for diarrhoea.

a) Yes

b) No

11. What type of oral fluids was given?

a) Rice kanji

b) Tender Coconut Water

c) Salt sugar solution

d) Butter milk

e) Lime juice

f) Any other

SECTION B:

Modified Gorelick diarrhoea assessment scale

This scale consists of 15 questions to assess the level of diarrhoea. Each statement had four responses. Normal-0, Mild-1, Moderate-2, Severe-3. The total score was 45.

S.No	Content	Signs	Score
1	Appearance	Active, Alert	0
		Dull	1
		Irritable, thirsty	2
		Irritable, weak	3
2	General condition	Normal	0
		Thirsty, agitated	1
		Thirsty, restless, irritable	2
		Withdrawn, somnolent	3
3	Pulse	Normal	0
		Rapid	1
		Weak	2
		Thready or feable	3
4	Anterior fontanelle	Normal	0
		Slightly Sunken	1
		Sunken	2
		Very sunken	3
5	Eyes	Normal	0
		Slightly Sunken	1
		Sunken	2
		Very sunken	3
6	Tears	Normal	0
		Present	1
		Rarely present	2
		Absent	3
7	Mucous membrane	Normal	0
		Slightly dry	1
		Dry	2
		Very dry	3
8	Skin turgor	Normal	0
		Slightly Decreased	1
		Decreased	2
		Decreased with tenting	3

S.No	Content	Signs	Score
9	Urine	Normal	0
		Reduced	1
		Reduced and concentrated	2
		None for several hours	3
10	Weight loss	Nil	0
		4-5%	1
		6-9%	2
		>10%	3
11	Color of the stool	Normal	0
		Yellowish	1
		Greenish yellow	2
		Green	3
12	Consistency of stool	Normal	0
		Pasty	1
		Loose	2
		Water	3
13	Odour of the stool	Normal	0
		Pungent	1
		Mild foul smell	2
		Foul smell	3
14	Blood & mucus in the stool	No blood	0
		Slightly Blood Stained	1
		Blood Stained	2
		Black and tarry stool	3
15	Episodes of diarrhoea	1-2 Times	0
		3-4 Times	1
		5-6 Times	2
		Above 6 Times	3

Interpretation of scores

Category	Score
Normal	0
Mild diarrhoea	1-15
Moderate diarrhoea	16-30
Severe diarrhoea	31-45

APPENDIX –H

STEPS OF INTERVENTION

INTRODUCTION

Pomegranate skin extracts are known to have antispasmodic effects, delay gastrointestinal transit, gut motility, stimulate water absorption, reduce electrolyte secretion. Consent was obtained from parents of each children and reassurance was be provided that the collected data would be kept confidential. Explained the action of pomegranate skin decoction.

Decoction was prepared from fresh pomegranate skin, which belongs to family of punicaceae. 50grams of fresh pomegranate skin was soaked in 800ml of water for one hour, boiled until it came to 200ml and stored in a closed container at room temperature. Extracted Pomegranate skin decoction was administered within three hours of time. 5ml was given twice a day for 1-3 years of age children and 8ml was given twice a day for 4-5 years of age children. Pomegranate skin decoction was given morning and evening at 6 hours intervals for three days.

STEPS OF PROCEDURE

- Prepared pomegranate skin decoction was kept ready for administration.
- Wash the hands.
- Administered pomegranate skin decoction 5ml for the children aged 1-3 years and 8ml for the children aged 4-5 years.
- After one hour of pomegranate skin decoction administration assessed the post test level of diarrhoea by using modified Gorelick diarrhoea assessment scale respectively twice a day for three days at 6 hours interval.
- The prepared pomegranate skin decoction was used within three hours.

50 GRAMS OF FRESH POMEGRANATE SKIN

SOAKED IN 800 ml OF WATER FOR 1 HOUR

BOILED THE SOAKED 800 ml OF WATER UNTIL IT CAME TO 200 ml

STORED IN A CLOSED CONTAINER

ADMINISTERED 5ml OF POMEGRANATE SKIN DECOCTION FOR 3 YEAR CHILDREN

ADMINISTERED 8ml OF POMEGRANATE SKIN DECOCTION FOR 5 YEAR CHILDREN

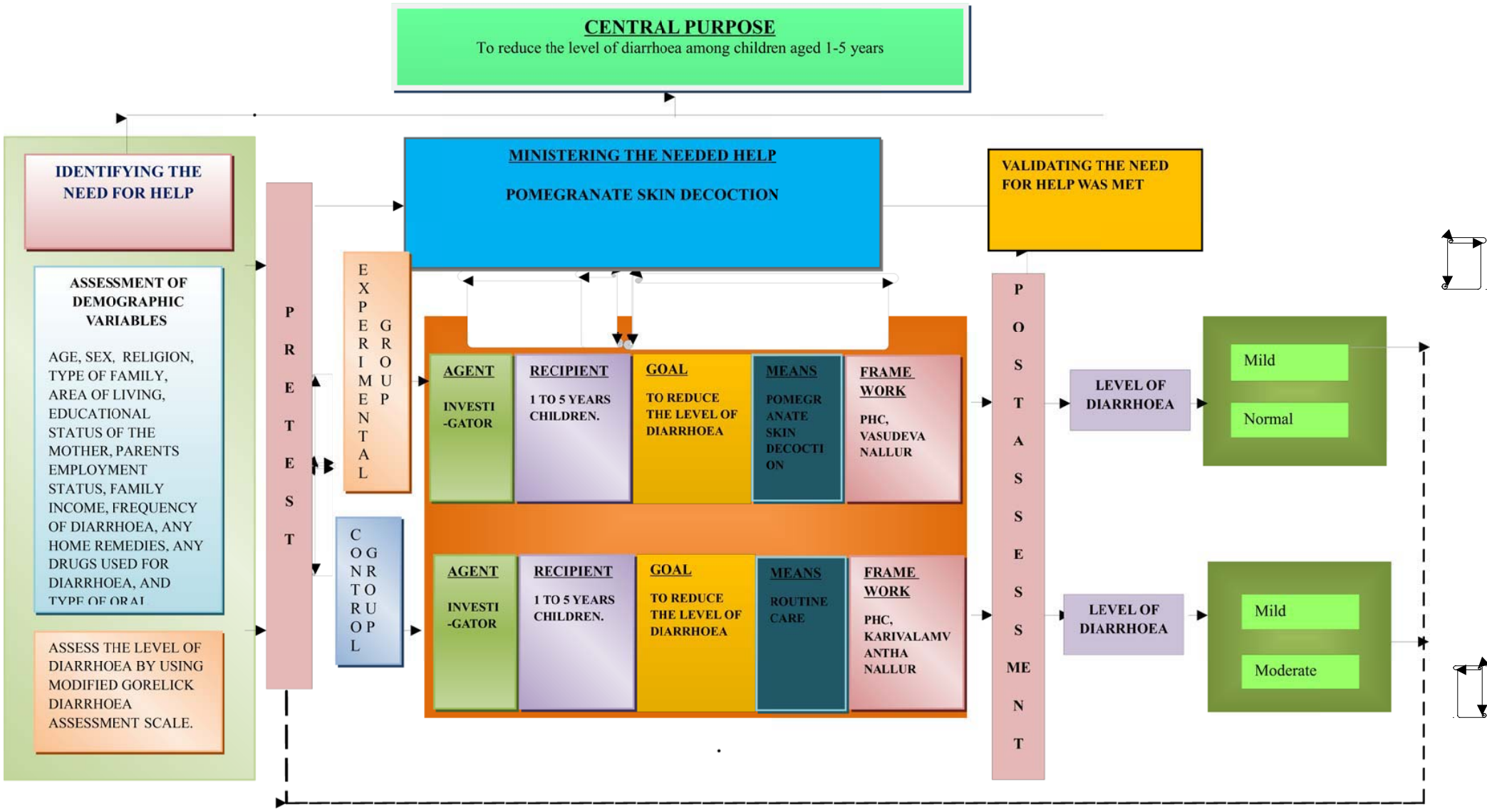


FIGURE: 1 MODIFIED WIDENBACH'S HELPING ART OF CLINICAL NURSING THEORY